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AMERICAN CHILD HEALTH ASSOCIATION

TRANSACTIONS OF THE THIRD ANNUAL MEETING

ATLANTIC CITY, NEW JERSEY
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PART I Papers Read in the Medical Section

AMERICAN HEALTH CONGRESS SERIES
VOL. II

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These plans will include standards of health practice which have been adopted in the light of modern experience.

JOINT SESSION WITH CHILD HYGIENE SECTION OF THE
AMERICAN PUBLIC HEALTH ASSOCIATION

Presiding: HENRY L. K. SHAW, M.D., *Consultant in Child Hygiene, New York State Department of Health, Albany, New York*, and WILLIAM J. BELL, M.B., *Deputy Minister of Health of Ontario, Toronto, Ontario*

**Newer Methods of Control of Certain
Communicable Diseases**

**Biologic Therapy in Prophylaxis and Treatment of
Scarlet Fever—Its Practical Value**

JOHN A. KOLMER, M.D., D.Sc., *Professor of Pathology and Bacteriology, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania*

**Measles Convalescent Blood as a Therapeutic Agent
—Its Status**

ROWLAND G. FREEMAN, JR., M.D., *New York City*

**Some Important Facts Concerning Active Immuni-
zation Against Diphtheria**

WILLIAM H. PARK, M.D., *Director, Bureau of Laboratories, Health Department, New York City*

**Diphtheria Immunization Results in Central New
York**

FREDERICK W. SEARS, M.D., *District State Health Officer, Syracuse, New York*

**How Should the Campaign Against Diphtheria be
Conducted**

MATTHIAS NICOLI, JR., M.D., *Commissioner of Health of New York, Albany, New York*

BIOLOGIC THERAPY IN PROPHYLAXIS AND TREATMENT OF SCARLET FEVER —ITS PRACTICAL VALUE

JOHN A. KOLMER, M.D., D.Sc.

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SINCE the Schick test has proved so reliable for determining susceptibility to diphtheria and toxin-antitoxin mixtures so successful in vaccination against the disease, not to mention the value of diphtheria antitoxin in passive prophylaxis and treatment, it is no wonder that similar attempts have been made in the specific prophylaxis and treatment of scarlet fever, since the Dicks discovered 3 years ago that the disease was apparently caused by a hemolytic streptococcus and its soluble or exogenous toxin. A large amount of investigation has been devoted to the skin test for susceptibility to scarlet fever, to vaccination with streptococcus toxin and to prevention and treatment with anti-scarlet fever serum and it is my purpose to briefly summarize their practical value and applications at the present time, fully realizing that our information is as yet quite incomplete in the subjects concerned and especially in relation to vaccination against the disease with subcutaneous injections of the toxin.

IS STREPTOCOCCUS SCARLATINAE THE CAUSE OF SCARLET FEVER?

But before taking up a consideration of these subjects it may be asked whether *Streptococcus scarlatinae* (Dick) has been definitely proved the cause of scarlet fever. That streptococci bear an important relation to the disease and especially in the production of its angina, adenitis and other complications has been long accepted, but until the investigations of the Dicks¹ in 1923 it was generally agreed that while the streptococcus was an important secondary organism it could not be regarded as the actual primary etiological agent. And since then not a few have questioned the evidence and especially DiCristina² and his colleagues in Italy. Unfortunately no way has yet been found to produce the disease experimentally in the lower animals or to quickly differentiate *Streptococcus scarlatinae* from other streptococci in the laboratory analogous to the bacteriological diagnosis of diphtheria, but the following facts may be accepted as indicating that a toxin producing

streptococcus is the primary etiological agent of scarlet fever and that vaccination and treatment with it and its products is upon a rational basis:

1. The production of scarlet fever-like reactions in human beings following the subcutaneous injection of streptococcus vaccines by Gabritschewsky and others in Russia.

2. The production of scarlet fever among volunteers by injections of streptococcus toxin by the Dicks. This I believe has been the most convincing evidence of all and it is eminently fitting in passing to pay tribute to the bravery of these volunteers, whose act ranks with those who risked their lives in the yellow fever investigation of many years ago, and to express the hope that a more fitting way may be found to permanently record their contribution to medical science and human welfare.

3. The occasional production of scarlet fever-like reactions among those who have received a first injection of 500 or more skin doses of the toxin in vaccination.

4. The extinction of the Dick skin toxin reaction during and following scarlet fever and indicating the production of specific antibody during the disease for this streptococcus toxin.

But do these facts conclusively prove that a specific streptococcus is the primary etiological agent of the disease or do they but furnish additional evidence of the importance of streptococci as organisms of secondary infection? That streptococci of apparently non-scarlatinal origin may produce scarlet fever-like exanthems cannot be denied since these are sometimes seen in surgical infections and especially after burns. In other words the toxins of some strains of virulent streptococcus pyogenes are capable of producing toxic rashes but in my opinion these need not influence us against accepting *Streptococcus scarlatinae hemolyticus* as the specific cause of scarlet fever and especially since the antibody produced during the disease is apparently specific for its toxins and because Moser,³ the Dicks and Dochez⁴ have been able to prepare immune sera of specific prophylactic and curative properties as well as capable of neutralizing the toxin in the skin as determined by the blanching test of Schultz and Charlton.

PRACTICAL VALUE OF THE DICK TOXIN SKIN TEST

Is the Dick skin test reliable and acceptable as a means for determining susceptibility to scarlet fever? Is it applicable on a broad scale in a manner analogous to the utilization of the Schick test for immunity in diphtheria? Has it any value in aiding the diagnosis of clinically doubtful cases of scarlet fever?

In my experience no one has yet developed scarlet fever among those yielding negative reactions but it would appear that a negative Dick test as applied under routine conditions is not quite so reliable as an index of immunity as a negative Schick under similar conditions. The toxins of different strains of *Streptococcus scarlatinae* may yield slightly

varying results and when one toxin is being employed it should represent a mixture of two or more strains. The weakly positive reactions are somewhat difficult to interpret and I agree with Lindsay, Rice and Selinger⁵ that a slightly larger dose of toxin should be used in conducting the test in order to detect those who are probably susceptible despite the presence of a small amount of antitoxin in the blood. In other words, the present-day difficulties with the skin test are largely of a technical nature and by using a polyvalent toxin which has been adequately tested in a group of known susceptible and immune individuals, in slightly higher concentration than usual and making the readings in 18 to 24 hours after injection, the test can be made satisfactory and acceptable for determining susceptibility to scarlet fever.

Among infants of 1 to 6 months of age the skin test is hardly worth while. From 40 to 50 per cent are apparently susceptible and yield positive reactions and practically 25 per cent of the immunes and negative reactors are almost sure to become susceptible by the time they reach 3 years of age. Approximately 60 per cent of children from 1 to 5 years of age yield positive reactions and if active immunization is ever placed upon a sound basis it is highly probable that the skin test will be dispensed with as a routine procedure and all children of preschool age immunized as is the present tendency with T-A immunization in diphtheria. After 5 years of age, however, the skin test is advisable as preliminary to active immunization since the percentage of positive reactions drops to the neighborhood of 30 per cent for the group between 5 and 10 years, 20 per cent for 10 to 15 years, and 15 per cent among adults. In other words, both in private and institutional practice the skin test is unreliable among infants under 6 months of age because a negative reaction means little or nothing since the immunity may readily disappear within the following year; it might be worth while between 6 months and 5 years because approximately 35 per cent are immune; and it is decidedly worth while after 5 years of age because 60 to 85 per cent are apparently sufficiently immune to escape infection. Furthermore the size of a positive reaction is somewhat of an index to the size of the first dose of toxin if vaccination is to be done since a strongly positive reaction in my opinion indicates that the first dose of toxin should not be more than 250 skin doses in order to guard against producing a marked systemic reaction.

May a child or adult possessing natural immunity and yielding a negative skin reaction be safely regarded as immune for the balance of life? A final answer cannot be given at present to this important question, but the chances are quite good that such is the case. Individuals have occasionally yielded positive reactions in my experience

after former negative reactions but I could not be certain whether these were due to a disappearance of natural immunity or the use of defective toxins. But it is certain that the immunity following active toxin immunization may wear away and that an individual yielding a negative reaction after vaccination may later react positively. But whenever the skin test with a reliable toxin yields a negative reaction in an individual after the first year of age, I think we may safely conclude that immunity is present sufficient for protection against scarlet fever.

Furthermore the test is of some value in differential diagnosis when applied *early* and especially in surgical cases and burns, because a positive reaction indicates that the rash *may* be scarlatinal while a negative reaction indicates that it could not be since it is indicative of the presence of immunity.

PRACTICAL VALUE OF TOXIN VACCINATION

A subject of more importance is that of vaccination against scarlet fever since approximately 45 per cent of children from 1 to 15 years of age and 15 per cent of adults are believed to be susceptible on the basis of the skin test, while the mortality under usual treatment without serum is in the neighborhood of 25 per cent for children of 6 months to 5 years, and 3 to 4 per cent after this age, to mention nothing of 3 to 30 per cent of such crippling complications as nephritis, adenitis, otitis media and mastoiditis. With the very satisfactory status of T-A immunization in diphtheria before us it was and still is but natural to hope that a similar state of affairs may be reached in the prevention of scarlet fever.

But it does not appear that the toxin of *Streptococcus scarlatinae* is as antigenic as the toxin of the diphtheria bacillus; certainly it is somewhat more difficult to produce antibody with it in both human beings and the lower animals and the resulting immunity does not appear to be of so long duration.

The doses first advised are now known to be inadequate and no one at present knows just what the doses should be for the best results under routine conditions. Approximately a total of 1,500 to 3,000 skin test doses of diphtheria toxin divided into the usual three injections and protected with an adequate amount of antitoxin, are sufficient for producing immunity in diphtheria, but these amounts of streptococcus toxin have not yielded satisfactory results in vaccination against scarlet fever. At the present time the Scarlet Fever Committee recommends five injections of 500, 1,500, 5,000, 15,000 and 20,000 skin test doses of toxin at intervals of a week as a minimum. While it is usually possible to give these in private and institutional practice where coöpera-

tion is good, yet it presents difficulties in public health work on a broad scale and for this reason the recent recommendation of Young and Orr⁶ of three injections of 500, 5,000 and 30,000 skin test doses at intervals of two weeks, is worthy of serious consideration. At all events it would appear that a total large dosage is required while at the same time necessary to avoid systemic reactions by starting with not more than 250 to 500 skin test doses for the first injection. It may be possible to avoid toxic reactions by combining a small amount of scarlet fever antitoxin with the toxin after the manner of the T-A mixtures in diphtheria vaccination but the results of some experiments along these lines have not been satisfactory and methods of detoxifying the toxin with sodium ricinoleate by the method of Larson, Huenekens and Colby⁷ are still under trial with somewhat discouraging preliminary results.

Active immunization against scarlet fever is, therefore, still in the experimental stage and especially as a public health measure on a large scale. But in private and institutional practice I think that enough has been done to show that the total injection of at least 20,000 skin test doses of toxin in five injections at intervals of one week confers an immunity in at least 80 to 90 per cent of positive skin reactors, and my present practice is to administer the doses recommended by the Scarlet Fever Committee except that the first one is reduced to 250 skin test doses in the cases of those children and adults giving strongly positive preliminary skin reactions. No one can state how long the immunity lasts but it is apparently safe to predict at least 3 years for the majority and I believe that the interval will be much longer after immunization with these large amounts of toxin. It is true that five injections may be a nuisance for some but the injections are ordinarily well borne, anaphylaxis is quite rare and the inconvenience quite worth while and especially in institutions for children and in private practice in the presence of epidemics. In my experience susceptibility to scarlet fever does not appear to be temporarily increased by the production of a negative phase of temporary depression of resistance when the first dose does not exceed 500 skin test doses. In other words, I believe physicians do well to conduct the preliminary skin test and vaccinate the positive reactors or susceptibles in families and institutions although the method is not yet ready for wholesale application in schools and communities because of the uncertainty regarding total dosage, number of injections, reactions and duration of immunity. Whether or not vaccination with streptococcus vaccine as practiced by Savchenko⁸ and Gabritschewsky⁹ as long as 20 years ago in Russia or with mixtures of vaccine and toxin are superior to the toxin alone cannot be stated;

in 1912 however, I¹⁰ thought vaccination with the vaccine decidedly worth while and now greatly regret that I did not continue my investigation at that time for more conclusive results.

PROPHYLAXIS BY ANTI-SCARLET FEVER SERUM

Fortunately the immunity following injections of the toxin develops much more quickly than is the case in diphtheria vaccination with T-A but not quickly enough to afford protection during the incubation period of scarlet fever or after intimate exposure to the disease. Data at hand indicate, however, that immediate protection may be secured by the subcutaneous or intramuscular injection of a dose of anti-scarlet fever serum sufficient for neutralizing 50,000 to 100,000 skin test doses of toxin. With highly concentrated serum this may amount to the injection of 1 to 5 c.c.

Under conditions of intimate exposure this passive immunization is to be recommended and especially in cases which have reached the end of the period of incubation, but the injection is always likely to sensitize the individual to horse serum and serum sickness follows in a large percentage of individuals. There is usually time for conducting a preliminary Dick toxin skin test and this is my practice in order to avoid the needless administration of serum. In this connection it is to be hoped that our commercial laboratories will render available an immune serum for prophylactic purposes prepared by the immunization of goats or cattle just as I believe and have long advocated in the preparation of diphtheria and tetanus antitoxins for prophylactic purposes by the immunization of cattle in order to reduce sensitization to horse anti-serum reserved for use in the treatment of these diseases. But even though such an anti-scarlet fever serum is not available at present and even though the injection of the present sera may produce sensitization and disagreeable serum sickness yet these are much less than the dangers of an attack of scarlet fever and I believe it sensible and advisable to administer the serum for prophylactic purposes in the presence of intimate exposure in private families or institutional outbreaks of the disease since an immunity is apparently produced in most individuals which appears to last at least 4 to 6 weeks as judged by the results of skin tests.

CURATIVE VALUE OF ANTI-SCARLET FEVER SERUM

Certainly the curative value of anti-scarlet fever serum prepared by either the Dick or Dochez methods or a combination of these, appears to have been definitely established. Indeed, I believe it may be stated that the administration of this serum should constitute a part of the

treatment of all cases just as antitoxin is used routinely in the treatment of diphtheria. It may be that the serum could be omitted in the treatment of the mild cases in order to avoid sensitization and the production of serum sickness which follows in a large percentage, but in my opinion this is inadvisable because mild cases may become severe and develop the complications of nephritis, adenitis and otitis media which are much more dangerous than serum disease and usually prevented by the early administration of serum in adequate dosage. For these reasons I believe that the immediate subcutaneous or intramuscular injection of a dose of concentrated serum sufficient for neutralizing at least 200,000 skin test doses of toxin should be a routine practice followed by subsequent injections if necessary as indicated by the temperature, rash and mental state of the patient. In severe infections and when the serum is given after the second to fourth days of the disease, it is sometimes advisable to give the serum by intravenous injection but if this is impossible or considered dangerous and inadvisable, the intramuscular route is to be preferred to the subcutaneous, because it is just as easy and more efficacious because of quicker absorption.

The prompt administration of serum has certainly reduced the mortality and the incidence of complications even though it has little or no curative influence upon such complications as otitis, mastoiditis and adenitis when these have developed. In cases of bacteremia, however, with the streptococcus in the blood as detected by blood culture, I believe that intravenous or intramuscular injections of serum should be employed and in these my preference is for the Dochez antibacterial serum or one prepared by immunizing horses with both the toxin and streptococci.

DIAGNOSTIC VALUE OF THE SCHULTZ-CHARLTON REACTION

Finally, brief mention may be made of the diagnostic value of injecting 0.1 c.c. of anti-scarlet fever serum *into* the skin presenting a rash. As shown by Schultz and Charlton¹¹ a potent serum causes blanching over an area of an inch or more in diameter in cases of scarlet fever and this test is sometimes of value in differential diagnosis. My practice is to give an intracutaneous injection of sterile normal horse serum at the same time and if the immune serum produces a larger area of blanching, to interpret the result as positive; if uninvolved skin is available I likewise conduct a Dick skin test, as a positive reaction along with a positive blanching reaction are acceptable as evidence of the scarlatinal nature of the rash.

This rash extinction test is also of value for estimating the curative power of anti-scarlet fever sera since those giving the strongest

reactions are apt to be best, although Lindsay and his colleagues state that even though a serum fails to give a positive reaction it may still be efficient in the treatment of the disease.

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MEASLES CONVALESCENT BLOOD AS A THERAPEUTIC AGENT—ITS STATUS

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IT IS unnecessary to more than point out the importance of any therapeutic agent which will in any way control epidemics of measles or lessen the incidence of complications which result from it. The incidence of the disease is greater than that of any other infectious disease. Of those who have not had the disease 96 to 98 per cent contract it after exposure; 95 per cent of these are infants and children. Uncomplicated measles is not particularly dangerous, the toxemia never reaching the severity seen in scarlet fever. The real dangers arise from the complications, the chief of which are broncho-pneumonia, middle ear disease, and catarrhal laryngitis. In a report of 3,080 cases of measles at the Willard Parker Hospital one case out of every four had pneumonia.

Many attempts have been made to develop a vaccine or antitoxin against measles but the difficulty of producing the disease in animals has led to inconclusive results. Corona, in Italy, has developed a vaccine from the organism which he considers to be the cause of measles. Good results from the use of this vaccine have been reported by other Italian workers but these reports have not been corroborated in other countries. Degwitz, in Germany, has prepared an antitoxic serum, by the inoculation of sheep, with the nasopharyngeal secretions of measles patients in the catarrhal stages of the disease. Reports on the use of this serum are in no way conclusive. In this country, both Tomicliffe and Terry working independently claim a green streptococcus as the cause of measles and the formation of an antitoxic serum by the inoculation of horses with this organism. These results are under investigation.

Convalescent measles serum has been used as a therapeutic agent since about 1916. The first large series was reported by Degwitz. This consisted of 1,000 cases and the results showed that 85 per cent of those injected did not develop measles. In 1923, Von Torday reviewed 2,000 cases, the results on which showed that more than 97 per cent did not develop the disease.

Work on the use of convalescent measles serum was begun by the New York City Department of Health in 1923. The first problem with which we were confronted was that of obtaining a supply of serum

adequate for the needs of New York City. Every adult patient in the contagious disease hospitals of New York City was asked to give blood and a suitable reward was offered. An attempt was also made to visit the homes of all the adult cases reported to the health department and to ask them to give blood. It was soon found that these sources were inadequate and it then came to the notice of the Director of Laboratories that there was a severe epidemic in one of the southern colleges and we were able to obtain sufficient convalescent blood from this source to carry us through the following winter.

The method of obtaining the blood from the individual donor is extremely simple. A 15- or 16-gauge Luer needle is inserted into the median basilic vein and the blood allowed to run directly into a 500 c.c. bottle containing 20 c.c. of 25 per cent sodium citrate solution and 0.3 g. of chinolol as a preservative. The bottle should be shaken while the blood is being drawn. The red cells are then allowed to settle and the plasma drawn off.

Since the New York City Department of Health began the use of convalescent measles serum about 3,500 cases have been injected; about 2,200 being in institutions and the rest in private families. Of these we have accurate reports on 1,126. Following Degwitz we first used 3 c.c. of serum as the dose but soon found that the best results were obtained with a dose of 6 c.c. and that for prophylactic use there was no apparent advantage in a large dose. The results on institutional children showed 85 per cent success. In the 220 private cases of which we have accurate reports 42 per cent showed modified measles, in 6 per cent the course of the disease was unmodified and in 52 per cent there was complete protection. In judging the results of a series of institutional children the definiteness of the exposure can never be accurately determined and it is safe to say that a good many of the children recorded as completely protected were never exposed. We feel that the results in the private cases give a much better picture of the actual value of this therapeutic measure. In all of our series we have no record of complication occurring in an injected case. It has been attempted to abort the disease by the injection of 20-30 c.c. of serum during the period of invasion, but we have had no results that would indicate any benefit from this measure. During the past winter 20 injected cases who subsequently developed measles were carefully studied from the standpoint of modification. The typical modification is a short or negligible period of invasion and a discrete copper colored rash which may or may not be accompanied by coryza and Koplik's spots. This type of modification does not always occur and in this series of 20 cases the complete picture was never observed. It was

noted in every case, however, that the period of invasion was invariably shorter than that of the initial cases and that while the temperature might rise to $104-105^{\circ}$ the drop to normal occurred in a shorter time than in the initial case. This can best be illustrated by the 4 H children. The initial case was typical measles with a 3-day invasion period in which the temperature went to 102° , dropped to normal, and went to 104.5° at the height of the rash, and dropped to normal at the end of four days. None of the 3 secondary cases showed any period of invasion. No Koplik's spots were seen. There was a very slight coryza. All 3 children became ill on the same day. The rash was faint in all of them, the temperature in 1 case arose to 104° and dropped to normal in 2 days, which was half the time taken by the initial case. Of the other 2 cases one went to 101° returning to normal the next day, the other rose to 100° and was normal by the end of the same day.

With slight variations the other cases show the same course and these results are what can be counted upon when convalescent serum is used as a prophylactic agent. Complete protection can never be assured and lack of any modification is rare.

It is possible that differences in results may be due to differences in the potency of the serum which may vary in direct proportion to the severity of the disease. It has been the custom of the New York City Department of Health to pool 6 or 7 different bleedings whenever this was possible. Recently a method of standardizing serum has been suggested which consists in injecting 1 c.c. of convalescent serum intradermally into a patient during the catarrhal stage of the disease. When the rash comes out it will fail to appear over an area about 8 cm. in diameter corresponding to the site of injection. The size of the blanched area varies in direct proportion to the potency of the serum.

The duration of the passive immunity derived from the use of convalescent measles serum is 3-6 weeks. It is obvious then when we consider the difficulties of obtaining the serum and the shortness of the immunity that the method limits itself to infants and children who could not well stand any illness. In this group it is advisable that a mild uncomplicated case should occur in order that a lasting immunity may be obtained. It also has a great field of usefulness in institutional epidemics but here the demand is usually greater than the supply. It will probably never be possible for any health department to adequately supply the need for this serum. It therefore devolves upon the private physician to make every effort to obtain 15-25 c.c. of blood from every measles patient whom he treats. Small bottles containing the necessary amount of citrate and preservative can be kept on hand and the pro-

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cedure is no more difficult than that of obtaining blood for a Wassermann.

Thus we have in convalescent measles serum a therapeutic agent which has great usefulness in a limited sphere. It is not the solution of the measles problem but it is a real step toward cutting down the mortality from this disease.

SOME IMPORTANT FACTS CONCERNING ACTIVE IMMUNIZATION AGAINST DIPHTHERIA

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THE PRINCIPLE of the Schick reaction is very simple. For a number of years before 1913 we used the reaction in the skin of guinea pigs as an index of the neutralization of the standard dose of toxin by the antitoxin. If in a test the mixed toxin and antitoxin has an excess of toxin, the skin of the guinea pig is irritated. If there is an excess of antitoxin, no irritation results and therefore no hyperemic spot appears. In the early investigations of others and ourselves on natural antitoxic immunity in man bleedings were taken from children and adults and tested for antitoxin by the method just described. The results showed that a small percentage of young children and a larger percentage of older children had antitoxin. The idea occurred to Schick that there might be a much simpler way, namely to introduce a tiny but definite amount of diphtheria toxin in the skin. He hoped that if this toxin met in the skin fluids an amount of antitoxin sufficient to insure immunity, it would be neutralized, but if there were no antitoxin or an insufficient amount to give immunity the toxin would be held in the skin more or less unneutralized and, just as in the case of the guinea pig in which a toxic mixture had been introduced, the skin would be irritated.

A million of tests made by us during the past thirteen years have proved beyond doubt that Schick developed an accurate test for the presence or absence of diphtheria antitoxin in the body. Careful investigation has demonstrated that if the blood contains adequate antitoxin for immunity there will be sufficient in the fluid in the skin to neutralize the standard test dose of toxin. It is evident that if this test is to be employed, sufficient toxin must be injected to cause irritation if insufficient antitoxin is present. It is also rather important that an excessive amount should not be given, for then even an amount of antitoxin in the skin sufficient to insure protection would be insufficient to neutralize the overdose of toxin.

Experience has taught that the proper dose of toxin is one-fortieth of the amount that would kill a guinea pig weighing 250 grams, in 0.2 c.c. of salt solution, or one-fiftieth of a fatal dose in 0.1 c.c. The

practical use of the Schick test has shown that errors may readily creep in which are most confusing. The technic of the Schick test is very simple but it must be carried out with the greatest care. If the fine needle penetrates too deeply the layers of the skin, the fluid escapes into the subcutaneous tissue, and its proper action on the skin does not develop. As all of you who have performed the test know, the sign of the correct administration of the injection is the raised whitish area which develops because of the pressure of the fluid in the skin. When this appears, we are certain that the test has been properly done. With toxin of uniform strength the results of repeated tests properly carried out on the same persons have shown very remarkable similarity. The possibility of any Schick test being improperly done or of the toxin being of less than the standard strength leaves us always a little doubtful of a negative Schick test. I have never seen an undoubted clinical case of diphtheria occur in a child who had recently had a negative Schick after a test done by an expert, but I have seen several cases occur in those in whom a negative Schick had followed injections of the toxin by those who were not so experienced in doing the test. The use of the Schick test has given us much interesting and valuable information about immunity at different ages and under different conditions. For instance, about 45 per cent of adults living in the country are immune and about 85 per cent of those living in the cities. If a mother is immune her infant is immune at birth and for some 6 or 12 months after birth. The presence of this transferred antitoxin and the comparative isolation of babies are the reasons why so few of them develop diphtheria. Between the ages of 1 and 3 years the great majority of children are shown by the Schick test to have no antitoxin. It is general knowledge that this is the most dangerous period of their lives in regard to diphtheria. Year by year as they grow older a greater and greater percentage of them develop their own antitoxin and so both the percentage giving the positive Schick test decline and diphtheria becomes gradually less of a menace. Nevertheless, this is a gradual change and two-thirds of the school children in the country and one-third of those in the city still remain susceptible and need protection.

Is an attack of diphtheria followed by antitoxin immunity?

Sometimes it is and sometimes it is not. As a rule slight attacks of diphtheria indicate that the children attacked have a trace of antitoxin in their blood, but not enough to prevent a local infection. These children react quickly to the stimulus of the absorbed diphtheria toxin and produce within a few days considerable amounts of antitoxin. If a Schick test is performed at this time it is negative. Those children

on the other hand who develop severe diphtheria have no trace of antitoxin before their attack. About one-half of these develop antitoxin in 1 to 2 months, while the other half never develop it. A Schick test done on persons 6 weeks after they have recovered from a severe attack will give a positive reaction in the majority. Before the lapse of 4 weeks it is apt to be negative in those who received antitoxin because of the traces of the injected antitoxin still in the body.

In institutions where an outbreak of diphtheria has occurred not only will some of the severe cases and most of the mild cases become Schick negative after a time but also many well persons. This has been shown to be due to the fact that many of these had become carriers of diphtheria bacilli without developing clinical signs. This is at least suggestive that the reason why city children become immune more frequently than country children is, as Zingher has emphasized, because the city children have far more chance to become diphtheria carriers. It seems as though the recovery in at least some of the cases of diphtheria untreated by antitoxin is brought about by the development of bactericidal substances rather than by antitoxin.

The use of the Schick test prior to immunization

A very much debated question is, under what conditions children should be given the Schick test previous to receiving the toxin-antitoxin. The doing of the Schick test has nothing whatever to do with inducing immunization. It simply reveals those who are susceptible. In the earlier days, it was important to know exactly which children were immune and which children were not, so that we could tell the exact percentage of those who were rendered immune, and so that we could judge exactly how long the immunity lasted. With the cessation of the experimental work, the need of doing the Schick test lessened and now the decision simply depends on whether in any given age group and locality it is more trouble and annoyance to make a Schick test and so omit unnecessary inoculations, or to omit the Schick test and inoculate all children. There are always two main points to be considered: the age group and the density of population of the community. Children under 5 years, whether in the country or city, are generally susceptible. They as a rule should not receive the Schick test before getting the three immunizing injections. In the older age groups the residence of the children is of prime importance. We know through many tests that in large cities children on the average become immune at younger ages than in the country, so that while in the city schools more than two-thirds of the children are immune, it is the reverse in

the country schools. In the country the Schick test is not as a rule used, while in the large cities it is. I have been using in New York for the last two years a modification of the Schick test in which I give 1 c.c. of the standard preparation of toxin-antitoxin subcutaneously. If this is given just beneath the skin of the lower part of the arm it will serve the purpose of an immunizing injection and at the same time reveal whether the child is immune or not. Those that show no reaction on the fifth day are immune and do not need the second and third injections. Those that do show a reaction are given immediately the second injection of toxin-antitoxin. Dr. Schroder has used this method with success in over 50,000 school children. It is especially useful in preschool children. In older children and adults there is difficulty in separating the pseudo reactions from the true reactions. The error is always on the safe side. This method saves the extra injection for the Schick test and the time taken to read it and at the same time gives the knowledge that the Schick test would have done. The reaction is read on the fifth or sixth day. It is of course possible to do a Schick test and give an immunizing injection on the first visit.

The control to the Schick test

Among the older children and adults there are occasionally cases in which a reaction to the injection somewhat similar to that of a positive Schick test follows the injection which is due not to the toxin but to the protein in the solution. This occurs in about 5 per cent and places some of the probably positive reactions in doubt. To clear up this doubt, besides the injection for this Schick test an intracutaneous injection is given at another spot of an equal amount of the heated toxin. The heat destroys the toxin but leaves the protein practically unaltered. If the reaction was due to toxin, this heated toxin will give no response, but if due to this protein, the reaction will appear. For accurate work this Schick control should be given in children over 6 years of age. If we do not inject the control solution we should immunize all doubtful as well as clearly positive reactions. In the older children and in adults even the control test may not suffice to absolutely settle the nature of the reactions because in perhaps 2 per cent of these the protein reaction is so marked and persistent that it is impossible to be sure that this is not a combined protein and toxin reaction at the point of the Schick test even though the reaction to the heated toxin seems as marked as that to the unaltered toxin. The control with the heated toxin is used especially in the Schick tests done some months after the giving of immunizing injections.

Are there any deleterious effects from the Schick test?

In the very susceptible children the local reaction is sometimes quite marked and lasts for several weeks. For one or two days there may even be one degree of fever. No lasting ill effects have ever been noted. In a very few exceptional adults, who are extremely susceptible to the nonspecific proteins, quite a severe local reaction with blisters may take place from both the control test and the Schick. This result, however, never leaves any permanent trace. This reaction has an important bearing on the giving of toxin-antitoxin. These cases give more or less severe reactions to the toxin-antitoxin or toxoid. Unless necessary it is well to omit in these persons injections of toxin-antitoxin or if it is necessary to give it in five doses.

Should doctors, trained nurses and attendants be Schicked?

Decidedly yes. It is thoroughly worth while for any physician or nurse to undergo the slight annoyance of a Schick test in order to have the information as to whether he or she is permanently immune or not. A person who has a negative Schick test is certain of immunity. A person who has a positive Schick test has always the possibility of diphtheria although, because of bactericidal substances in the blood as well as healthy mucous membranes, he or she may be immune at times.

What is toxin-antitoxin and what is toxoid?

Diphtheria toxin is an extremely irritant and toxic substance. If an attempt is made to immunize animals or children with it, extreme care must be taken not to increase the beginning very small amount in subsequent injections until some 6 weeks or 2 months have passed, at which time appreciable antitoxin will have developed. It was found that if the toxin was modified by treating it with iodine or with formalin that while its toxic strength had decreased greatly its ability to neutralize antitoxin and to stimulate the production of antitoxin had changed very little. This altered toxin was called "toxoid." It was also found that the addition of an amount of antitoxin just insufficient to fully neutralize the toxin would result in a mixture which while only very slightly toxic was actively immunizing. This mixture is toxin-antitoxin. The mixture of toxin-antitoxin now utilized universally in this country was developed by me about 4 years ago. It contains about enough toxin to kill quickly four guinea pigs. To this is added enough antitoxin to neutralize it to an extent that the whole injection causes slow death or paralysis of one guinea pig. The antitoxin is usually taken from a horse but it may equally well be taken from an immunized goat. The

formalin in the toxoid or the antitoxin in toxin-antitoxin have no part in the immunization. They simply modify the toxin so that more can be safely injected and not produce any local injury.

Is an injection of toxin-antitoxin ever dangerous?

In over one million injections of toxin-antitoxin in New York State no permanent harm has ever resulted. During the past 10 years, however, three accidents have followed the administration of toxin-antitoxin or of supposed toxin-antitoxin. The first instance was in Dallas where through a mix-up of two preparations a toxin-antitoxin mixture was used which had not been sufficiently neutralized. Several deaths occurred. Regulations were then made which will absolutely prevent this accident recurring. The second accident, which had less serious consequences, occurred in Boston. The contents of a number of vials of a special preparation used there were solidly frozen. Immediately after thawing, the toxin-antitoxin was injected into a number of children. The children who received it had both local and constitutional symptoms; all, however, recovered. Some of this material when tested was later found to contain free toxin. It is interesting to know that the new toxin-antitoxin which we call the one-tenth L plus toxin-antitoxin is not made harmful by freezing. The third accident happened a year ago in Vienna which was at first stated to be due to the toxin-antitoxin having become toxic after it left the laboratory. This is an impossibility. It was discovered after a careful investigation that a number of vials of diluted toxin had been sent out with the toxin-antitoxin vials and that some of these had been used by mistake for toxin-antitoxin and it was these vials of toxin that made the trouble. Beyond these accidents there is no known death from the injections and no annoyance beyond the soreness which develops in some and lasts for two or three days.

Do children develop through sensitization to the horse serum globulin in the toxin-antitoxin any possibility of developing anaphylactic symptoms when given later injections of horse serum?

Let us first consider the results following the larger injections of antitoxin used to give passive immunization. So far as immunizing injections of antitoxin are concerned, there is no question that there is a definite sensitization of those who are injected. There is, however, no evidence that this sensitization produces a change which makes later injections of the serum dangerous.

I have gathered together some thirty cases in which injections were

given some 3 weeks to 6 months after the immunizing antitoxin injections. In several of these children there was an immediate reaction with rash and temperature. The rise of temperature in one was four degrees and in another two degrees. These rises of temperature were quite transient, and in the course of 4 hours the temperature had returned nearly to normal. With the temperature there was a general urticarial rash which lasted for one or two days. This is what we call an accelerated reaction. The reaction in these children besides being hastened may have been somewhat more severe, but there was no sign of danger and in fact within a few hours the children were absolutely in good condition except for the annoyance of the urticarial rash. So far as sensitization with toxin-antitoxin is concerned, we must remember that the amount of serum given is very small, and is equivalent to about one-three thousandths of a c.c. of horse serum globulin as compared with 1 c.c. in an immunizing injection of antitoxin.

Hooker several years ago showed that persons who had received toxin-antitoxin injections gave a higher percentage of positive skin reactions when tested one year later. In repeating his tests I found that there was indeed a slight increase in the normal percentage of persons who gave a slight skin reaction. None of these reactions, however, was severe such as occurs in occasional cases with or without a previous history of toxin-antitoxin injections.

I have looked up the records of more than fifty persons who received toxin-antitoxin injections from 1 to 3 years previously and compared them with an equal number of children who had never received these injections. The results of the comparison were very interesting. Practically the same number of the children reacted in those who had received and in those who had not received toxin-antitoxin. There were few reactions in those who had received toxin-antitoxin which were a little worse than in those which had not received it. Whether this difference was due to toxin-antitoxin or to the children is uncertain but it probably is fair to consider it as due to the toxin-antitoxin. The difference, however, was so slight in amount that no one would think of withholding toxin-antitoxin because of it.

I am convinced that the cases described by Stewart, of Minneapolis, in the *Journal of the American Medical Association* were simply examples of ordinary severe serum sickness which had little if anything to do with the previous injection of toxin-antitoxin. I have talked this matter over with Dr. Sears and from his large experience he agrees with me that there was nothing whatever for physicians to worry about in the giving of toxin-antitoxin injections. However true this may be, there is a feeling among some that it would be wise to change from toxin-

horse-antitoxin to toxin-goat-antitoxin or to toxoid. We have used a preparation of toxoid made by Ramon of Paris with results equally good to those obtained from our toxin-antitoxin and we have now prepared a large amount of toxoid with formalin according to the method described by Ramon. We intend to test this out very thoroughly and if the results are equal to toxin-antitoxin, we will probably make the change, but there is absolutely no reason to hurry and it is our idea not to make the change for at least another year. As a rule toxin-antitoxin injections give slightly more reaction in the very young and less reaction in the older children and adults. This is due to the fact that the very young children respond to the slightly under-neutralized toxin while older children respond to the proteins in the toxoid. The toxoid is practically without toxic effect but has about thirty times as much of the broth and culture proteins.

If they have positive reactions to the Schick test should doctors and nurses be given toxin-antitoxin?

It certainly is wise for all nurses and doctors whose duties bring them in contact with diphtheria to take toxin-antitoxin if they give a positive Schick test and no marked reaction to the control protein test. Those who show no reaction from the control test can be pretty well assured that they will have little or no annoyance from the toxin-antitoxin. If, however, there should be a marked reaction in the control Schick test there will probably be a severe reaction to the toxin-antitoxin injection and it is probably not worth while to take the toxin-antitoxin injections unless they are nurses in a general hospital or in a contagious disease hospital. In these cases the individual doses should be divided in half and an additional dose given.

When should a Schick be done after toxin-antitoxin?

A retest stands in an entirely different position from the original Schick test. It shows us whether the children have become immune or not. We know that from 80 to 90 per cent develop immunity after the three injections but without the retest it is impossible to know which are the fortunate ones. It is therefore very valuable to do a Schick test some 3 or 4 months after the attempted immunization. If it should be positive, another series of injections should be given. Very few of the refractory children resist the second series of injections. If the Schick test is negative, there is no need of doing any later routine tests. Tests carried on for 9 years show that 90 per cent of a group of susceptible children who became immune after the injections have remained immune for that time.

What should be done with an unprotected child exposed to diphtheria?

If the child is under 6 years of age, especially if the physician lives at a distance, it is wise to give immediately a subcutaneous injection of 1000 units of diphtheria antitoxin. This of course will prevent the use of the Schick test. This amount of antitoxin will give an absolute immunity for 10 days and a probable immunity for 2 weeks. It is wise to make a culture in order to protect other children if the child should have become a carrier through contact with a case.

If for any reason it is thought best not to give antitoxin unless symptoms suspicious of diphtheria arise, a culture should be made from the throat and nose and a Schick test should be done. It is also well from time to time for the child to have its nose douched with a mild non-irritating antiseptic cleansing solution and also its throat. In older children also if the exposure has been great I believe it is wise to give an immunizing dose of antitoxin.

What should be done with a child who has received toxin-antitoxin injections or who has been shown to be immune by the Schick test?

If a Schick test has been recently done, there is no need of giving antitoxin even though the contact has been close. Here another Schick test should be done to add to the certainty of the correctness of the first one. A culture should be made to prevent the possibility of the child from infecting others if it should have become a carrier through contact. If the child should develop a suspicious sore throat, it should then receive antitoxin even though the probability of its being diphtheria is very slight. There is no serious objection to giving the child an unnecessary dose of antitoxin and we know that serious harm may happen if the child develops diphtheria and an early dose of antitoxin is not given. We also know there are slips with the Schick test.

In conclusion, let me emphasize that the use of toxin-antitoxin has not yet become so general that we can cease to watch children for the first signs of a suspected diphtheria so that antitoxin can be given on the first day of sickness when it does its most perfect work and if not then at least as early as possible, for every added hour of disease lessens somewhat the effectiveness of the antitoxin.

It is still the combination of antitoxin and toxin-antitoxin or toxoid which is so rapidly conquering diphtheria. Dr. Nicoll and Dr. Sears will tell you of the success being achieved in New York State. May I just mention a few striking figures for New York City and the country at large.

In New York City the deaths from diphtheria during the first 4 months of 1924 were 305, and during the first 4 months of 1926 they were 168,

and the death rate per 100,000 in seventy cities of the United States was 19.12 while in 1925 it was only 9.74. This was a drop of more than 50 per cent in 2 years. Such results should make us enthusiastic not only to do our part to make our children safe from diphtheria but also to make safe the children of the communities in which we live.

DIPHTHERIA IMMUNIZATION RESULTS IN CENTRAL NEW YORK

FREDERICK W. SEARS, M.D.

District State Health Officer, Syracuse, New York

QUARANTINE, isolation and terminal disinfection methods for the control of diphtheria, together with a thorough knowledge of its etiology, diagnosis and mode of transmission have not lessened the prevalence of the disease. Thirty years' experience with a specific diphtheria antitoxin for its treatment and for the purpose of securing passive immunity has not lowered the death rate from diphtheria to the extent that it should.

Three important factors are undoubtedly responsible for this failure: First, too much reliance on the laboratory diagnosis with the consequent failure to give antitoxin upon the receipt of a negative report. Second, the failure to give antitoxin in clinical cases without waiting for a laboratory diagnosis. Third, the delay on the part of parents and guardians in calling a physician during the early manifestations of the disease, and frequently their opposition to the administration of antitoxin until the case is practically hopeless.

The eradication of any communicable disease must depend to a large extent on the securing of an active immunity among a large percentage of the susceptible population. By means of isolation and quarantine we may secure a temporary postponement of infection and thereby defer an attack to a more favorable age period, but no great progress will be made by these methods in the elimination of the disease.

It is a well known fact that in most of the communicable diseases one attack secures immunity from a subsequent attack for a longer or shorter period of time. It has been the aim of physicians engaged in this scientific investigation to find some means by which immunity may be secured without the sickness and deaths which so frequently occur when immunity is acquired by nature's methods. Our only hope in the eradication of diphtheria is through active artificial immunization.

All methods for the control of smallpox were absolute failures until the advent of artificial immunization through vaccination. Typhoid fever especially in our armies raged unchecked until temporary immunization could be secured through antityphoid inoculations. Tetanus was the bane of the army surgeon until its prevention could be secured through the use of tetanus antitoxin, and so in diphtheria while we were

able to lower the mortality and able to protect in large measure the individual by the use of antitoxin, the incidence of the disease was little affected. Not until the announcement of the Schick test for ascertaining the susceptibility of the individual to diphtheria and toxin-antitoxin for immunization against the disease were the prospects of its eradication made possible.

Through the work of Dr. William H. Park of New York City and his coworkers a toxin-antitoxin mixture has been perfected whereby we can secure a large percentage of immunity among children with no risk and practically no discomfort to the individual.

Theoretically we should secure 100 per cent immunization among children in order to eradicate diphtheria. From a public health standpoint, however, the disease can practically be controlled by securing the immunization of a relatively high percentage of school and preschool children. All parents should, however, realize that they should have their children protected, as it is unsafe to depend on high percentage immunization for their individual protection. The immunity on the high percentage basis has been strikingly shown in our work of the past five years in the central New York district of which I am to speak.

This district comprises 4 counties, including 1 second class and 2 third class cities, 30 incorporated villages and a large rural population, representing a total population of about 400,000. In 15 of the incorporated villages where we have secured immunization of 50 per cent or more of the school children there has been a most striking decrease in the diphtheria incidence and few or no deaths during the past two years. In 2 of these villages, each having a population of more than 6,000 people, there has not been a case of diphtheria reported in more than a year and a half. All of the cities, nearly all of the incorporated villages and a considerable part of the rural population have been included in our work. The diphtheria death rate in this district for 1925 was 2.9 per hundred thousand as compared to 7.8 per hundred thousand for the remainder of the state exclusive of New York City.

In the city of Auburn where we have secured the immunization of the highest percentage of school and preschool children the results have been so striking that I shall give them in greater detail.

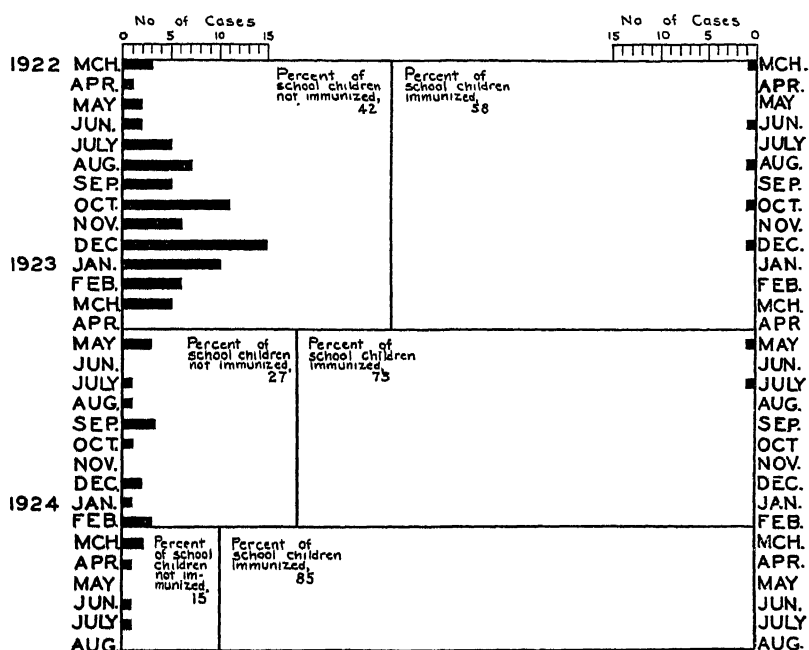
As I have stated in previous papers on this subject the city of Auburn has a population of about 37,000, representing 31 nationalities, varied industries and all kinds of home conditions.

During the previous decade diphtheria had become increasingly prevalent, the death rate from this disease having reached as high as 48.3 per hundred thousand in the year 1920 and nearly as high in the

year 1921 with a correspondingly larger number of cases. School attendance was in consequence seriously interrupted, which in the fall of 1921 had reached an alarming condition partly due to the fact that a very large number of the school children had become virulent diphtheria carriers. Having demonstrated the value of immunization by completely eliminating diphtheria in the Orphans' Home in that city the previous year, we decided on an intensive campaign for the purpose of securing immunization of as high a percentage of the school population as was possible.

CHART I

CASES OF DIPHTHERIA AMONG IMMUNIZED AND NON-IMMUNIZED GROUPS OF SCHOOL CHILDREN, AUBURN, NEW YORK,
MARCH 19, 1922, TO SEPTEMBER 1, 1924



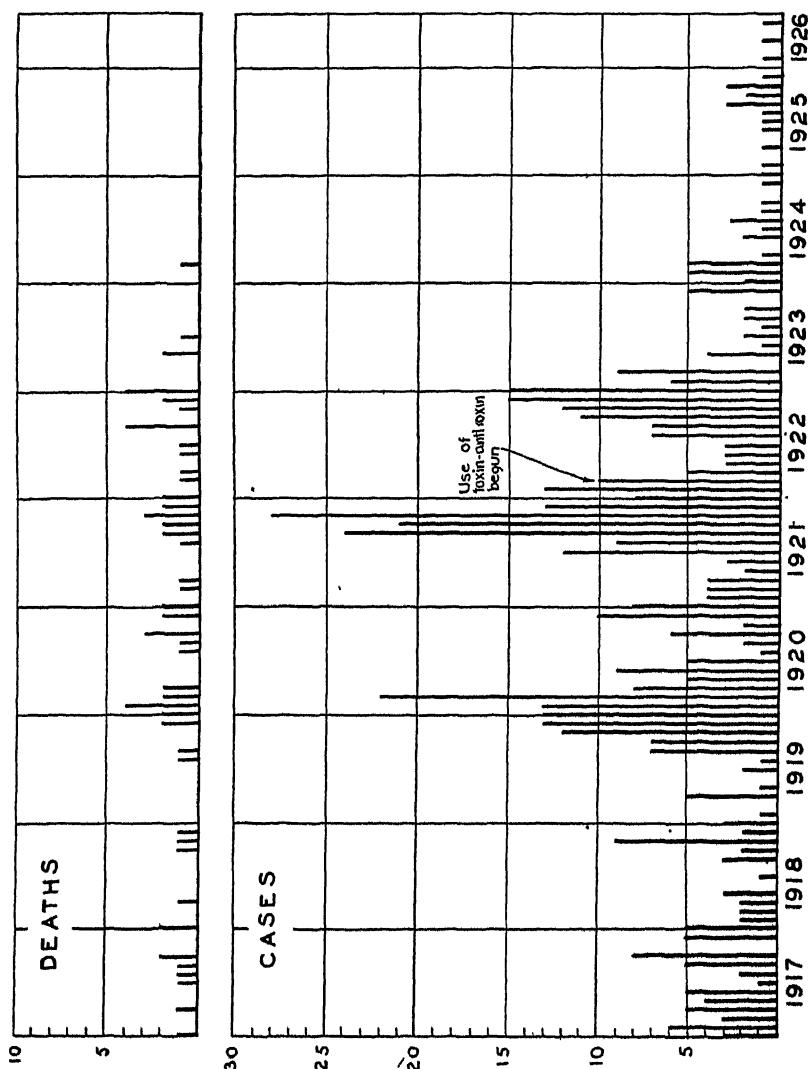
After discussing its possibilities with the local health officer, the physicians of the city, the school authorities and others, and obtaining good publicity through the press, we began the work of immunization on February 9, 1922. Between that date and March 17, 1922, we had Schick tested and immunized the positive reactors of 58 per cent of the school children from whose parents we had obtained written consents.

By keeping an accurate card index record at the local laboratory of the name of the child and the dates of the test and immunization

we were able to check the results of immunization by using the non-immunized children as a control check. At the end of one year, that is from March 17, 1922, to March 17, 1923, there had occurred 78 cases of diphtheria, resulting in 13 deaths among the 42 per cent from whose parents we had not received consent, and 5 reported cases and no

CHART II

DIPHTHERIA CASES AND DEATHS BY MONTHS, AUBURN, NEW YORK,
1917 TO 1926



deaths among the 58 per cent treated or who had shown a negative Schick test. One of the 5 cases occurred too soon after treatment for immunization to have taken place and the other 4 proved to be non-diphtheritic throat affections in children who were diphtheria carriers.

In the spring of 1923 we secured the immunization of an additional number, increasing our percentage of immunized children to 73, leaving only 27 per cent in the non-immunized group.

During that year there occurred 15 cases of diphtheria, resulting in 1 death among the 27 per cent not immunized, and 2 doubtful cases and 1 death in the 73 per cent treated group. The one death, the

TABLE I

DEATHS FROM DIPHTHERIA AMONG IMMUNIZED AND NON-IMMUNIZED
GROUPS OF SCHOOL CHILDREN, AUBURN, NEW YORK,
MARCH 19, 1922, TO SEPTEMBER 1, 1924

	NOT IMMUNIZED	IMMUNIZED
	March, 1922, to April, 1923	
Per cent of school population.....	42	58
Deaths.....	13	0
	May, 1923, to February, 1924	
Per cent of school population.....	27	73
Deaths.....	1	1
	March to August, 1924	
Per cent of school population.....	15	85
Deaths.....	1	0

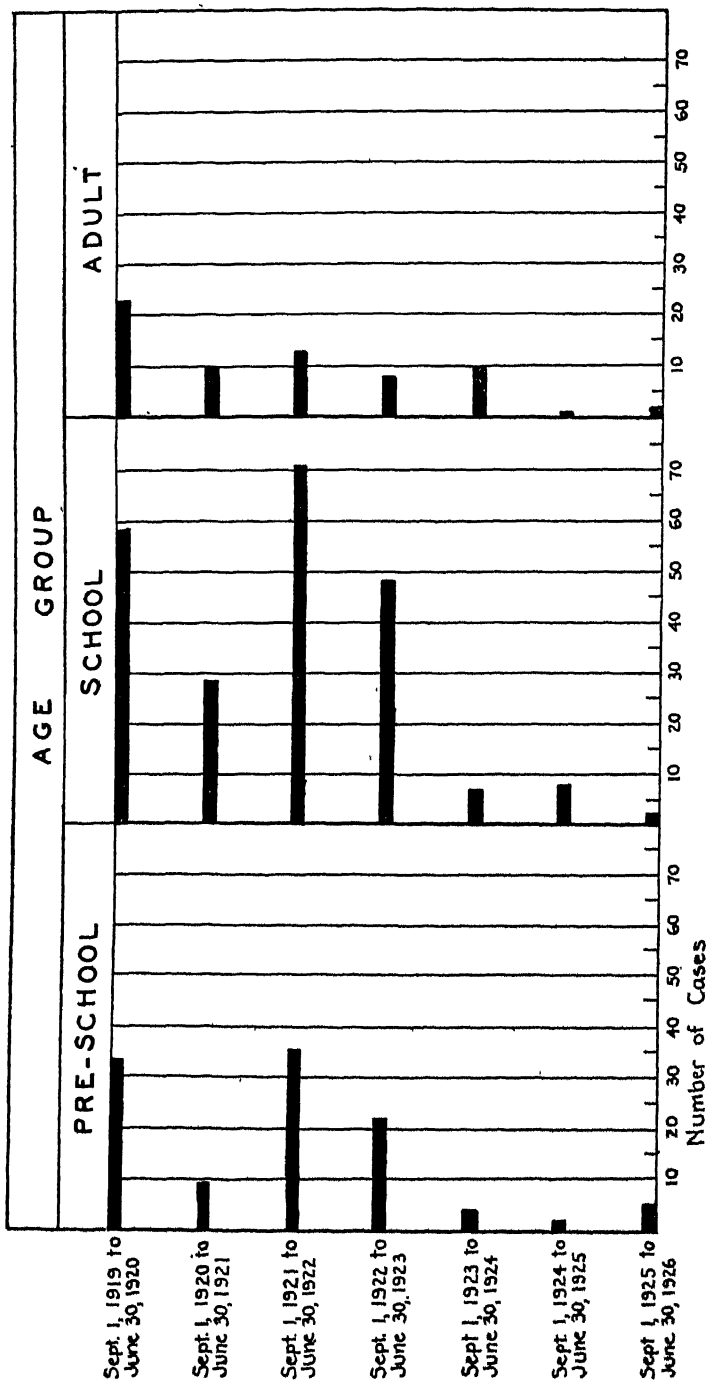
only one which has occurred in Auburn among either Schick negative children or who have received toxin-antitoxin, I will refer to later.

By the spring of 1924 we had secured the immunization of about 85 per cent of the school population and a considerable number of the children under school age. Since that time, now 2 years and 2 months, there has not been a death from diphtheria in the city of Auburn, the last death having occurred on March 9, 1924, a non-immunized child 2 years of age. The last previous death was July 21, 1923.

Having secured this high percentage of immunization among school children we have since confined our work entirely to the preschool child and school children of the kindergarten grade. Among this group we have given up entirely the preliminary Schick testing, reserving this test until 6 to 10 months later to ascertain whether or not immunization has been secured in each child treated.

The work has since continued fall and spring and an intensive cam-

CHART III
 CASES OF DIPHTHERIA BY AGE GROUPS, AUBURN, NEW YORK, 1919 TO 1926
 (Toxin-antitoxin immunization of school pupils begun in March, 1922)



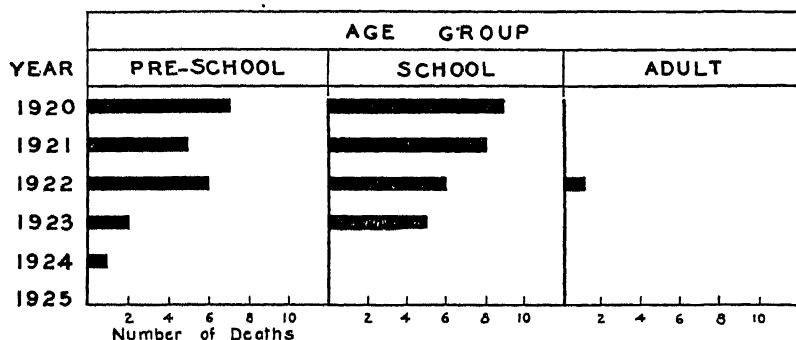
paign is now in operation for the purpose of securing the immunization of as many as possible of the children between the ages of 6 months and 5 years.

During all of this work no child has had a serious reaction nor an infected arm. When we were using the 3L+ mixture we occasionally had a rather severe reaction lasting from 24 to 36 hours. This was particularly noticeable in children who had just previously recovered from a severe illness such as scarlet fever or other acute disease. We have not, however, seen such a reaction since we have been using Dr. Park's .1L+ mixture.

CHART IV

DEATHS FROM DIPHTHERIA BY AGE GROUPS,
AUBURN, NEW YORK, 1920 TO 1925

(Toxin-antitoxin immunization in schools begun in March, 1922)



There are three good reasons why our efforts should be largely exerted toward immunization of the preschool children: First, it is among children of this age that from 60 to 70 per cent of the deaths from diphtheria occur. Second, immunity by the use of toxin-antitoxin is much more readily secured as shown by the subsequent Schick test among children of this age. Third, it is among children of this age that we get the least disturbance from the use of toxin-antitoxin as they have practically no protein sensitization. There is, however, no doubt but that our work among the school children in Auburn was the principal educational factor by which we secured so large a number of the preschool children for immunization and that it was also a great factor in reducing the incidence of the disease in this latter group from decreased contact infection.

The Schick test is a most valuable and dependable procedure for ascertaining an individual's susceptibility to diphtheria when the test

is accurately performed with a standardized toxin dilution. These tests should be carefully read, always giving the individual the benefit of the doubt. Its value as a preliminary test is a matter of much discussion of late. The writer believes its use as a preliminary test depends on racial and environmental conditions. We have given it up entirely for children in rural communities regardless of their age; also in sections of cities where there are children whose parents are of the English speaking races. We still use the Schick test among Polish and Italian school children principally as a time and material saving measure. We have found that among Polish children only 26 or 27 per cent are susceptible, while the percentage among the Italian children is about 36. For example, in one Polish school 633 children were given the preliminary Schick test and only 190 of them gave positive reactions and therefore were in need of toxin-antitoxin treatment. We believe, however, that we should give the Schick test from 6 to 10 months after the administration of toxin-antitoxin in order to ascertain if immunity has taken place. Unless we do this the value of the treatment will be discredited and lives may be lost through a sense of security from the supposed immunization. The subsequent Schick test among a large number of school children will show that from 10 to 15 per cent will give a skin test reaction varying from a brownish pigmentation to a more or less typical reaction. It is only among 2 or 3 per cent that we get the bright typical reactions. In the younger children we will obtain a much higher percentage of immunity. Our experience leads us to believe that the brown pigmented reactors are immune to an ordinary exposure to diphtheria but those showing bright typical reactions should receive a second series of toxin-antitoxin treatments. And in rare instances we have found it necessary to give even a third series before a negative Schick test could be secured. The resistance to the immunizing effect of toxin-antitoxin appears to be a family characteristic. The importance of the subsequent Schick test was brought forcibly to my attention in the early part of our campaign by the death of the child above referred to who had received toxin-antitoxin. This was a boy 12 years of age, who was Schick tested in February, 1922, showed a positive test, was immediately given toxin-antitoxin, was retested 8 months later and again showed a bright positive Schick test. He was not given a second series of toxin-antitoxin injections. A few months later he contracted what was diagnosed as diphtheria, clinically and bacteriologically. In spite of the fact that he was given 30,000 units of diphtheria antitoxin intravenously within 36 hours of the onset of the disease, he died 5 days later from symptoms of general septicemia. Some question was raised

as to whether he might have been suffering from a streptococci sore throat and was also at the time a diphtheria bacillus carrier. Since that time we have made it a practice to immediately follow up all such positive subsequent Schick tests with a second series of toxin-antitoxin treatments.

The question is often raised as to who should be responsible for the administration of toxin-antitoxin. If every practicing physician would either immunize with toxin-antitoxin or be responsible for the immunization of all children between the ages of 6 months and 5 years in the families under his care the problem would be solved. Before this can be brought about, however, the value of the toxin-antitoxin immunization must be thoroughly demonstrated in every community.

TABLE II
COMMENTS ON DIPHTHERIA CASES IN AUBURN, NEW YORK,
DURING 1925

CASE NO.	AGE	NEG. SCHICK OR IMMUNIZED		REMARKS
		WITH T.A.		
1	8	No		Parents refused
2	9	Neg.		Carrier. No clinical symptoms
3	3	No		Older children immunized
4	3	No		
5	13	No		Father refused T.A.
6	19	No		Refused
7	28	No		
8	12	No		Mother refused T.A.
9	2½	No		
10	5	No		
11	4	No		
12	9	No		Father refused T.A.
13	4	No		
14	1	No		
15	6	No		
16	9	No		Father refused T.A.
17	58	No		
18	6	T.A. in May	No clinical symptoms cultured for contact	

The major part of this work of education must be conducted by public health departments in such a manner as will best secure the coöperation of physicians and will encourage them to take over this work. False and misleading statements which have frequently gotten

into the press are doing much to discourage this work among physicians. Warnings as to the dangers of sensitization of individuals to the subsequent administration of antitoxin and other horse serum products, by those whose study of anaphylaxis has been to a large extent confined to laboratory experiments with guinea pigs and other animals, and who have not had a large practical experience with toxin-antitoxin administration to children, are in a large measure responsible for the failure of physicians to take over this work. In no case have we seen the slightest evidence that such sensitization has taken place. Children who have received toxin-antitoxin and who have subsequently developed Vincent's angina or other non-diphtheritic throat diseases have received large doses of diphtheria antitoxin without the slightest evidence of allergic manifestations, except occasionally a mild serum sickness. In one such case 24,000 units of antitoxin was given intravenously to a child who had previously received toxin-antitoxin. Immunized children who have become diphtheria contacts and who on that account were given prophylactic doses of antitoxin have shown no disturbance whatever. On the other hand, 100 children in an institution who, while suffering from diphtheria had received large doses of antitoxin, were 3 months later given the Schick test, nearly all of them showing a positive reaction were given toxin-antitoxin and in only one case was there any evidence of serum sickness and that only a transient urticaria.

There is no analogy between the experimental anaphylaxis in guinea pigs and the anaphylaxis which occurs in man from the use of horse serum. All authorities agree that practically all anaphylactic deaths which have occurred from the injection of horse serum products have been from the first dose given. In Syracuse during the past 30 years I have known of but 2 deaths from anaphylactic shock following the administration of horse serum products. Both were asthmatics, in both instances it was the first dose given, and in both instances it was an immunizing rather than a therapeutic dose. Rosenau calls attention to the fact that anaphylactic shock rarely if ever occurs from diphtheria antitoxin if the individual to whom it is given is suffering at the time from an attack of diphtheria. The important thing for us as physicians to remember is not to administer full doses of antitoxin to children who have a history of asthma without previously desensitizing them. Asthmatic children, however, should be immunized with toxin-antitoxin in order that they may not contract diphtheria which would require the administration of antitoxin.

The failure or delay in giving antitoxin through fear of anaphylactic shock has undoubtedly resulted in a hundredfold more deaths than have resulted from anaphylactic shock due to the administration of anti-

toxins. As Park has pointed out there may be a slight increase in skin sensitization due to toxin-antitoxin but never to such an extent as to interfere seriously with immunization.

We are often asked the question, "Does one attack of diphtheria render an individual immune from subsequent attacks?" Our experience is that it does not, especially if antitoxin has been given early in the disease. We had an opportunity to test this point in an institution which had an outbreak of diphtheria in September, 1924. In December of that same year we Schick tested 17 boys who were among the most severe cases, all of whom gave a positive Schick test. Fifteen of these boys were given a series of toxin-antitoxin treatments in the following month. We re-Schick tested the 17 boys 10 months later, and of the 15 who had received toxin-antitoxin 14 gave a negative test and 1 was still positive. The 2 who did not receive toxin-antitoxin still gave a positive Schick test.

The permanency of immunization produced by toxin-antitoxin cannot be settled until a sufficient time has elapsed to demonstrate this point. All of the children who are still remaining in the Auburn Orphans' Home whom we tested and immunized in April, 1921, are still immune as shown by a recent Schick test.

Time does not permit a discussion of the economic side of this question, but Table III shows briefly some phases of it.

TABLE III
ELIMINATING THE FINANCIAL LOSS FROM DIPHTHERIA,
AUBURN, NEW YORK

	DAYS LOST	FINANCIAL LOSS
September, 1921, to June, 1922.....	22,438	\$10,860.00
March, 1922—Toxin-antitoxin immunization begun		
September, 1925, to June, 1926.....	0	0.00

Financial loss due to diphtheria based on cost of 48.4 cents per pupil per day for education in public schools of Auburn, and on days lost by pupils on account of diphtheria in the school years 1921 and 1925.

HOW SHOULD THE CAMPAIGN AGAINST DIPHThERIA BE CONDUCTED

MATTHIAS NICOLL, JR., M.D.

Commissioner of Health, State of New York, Albany

THE ATTITUDE of an enlightened public, toward new and far-reaching discoveries in the fields of preventive and curative medicine, is controlled by a peculiar and perverse psychologic attribute which leads it to hail with joy and wide acclaim the announcement that a disease, which has scourged the human race from time immemorial, may at last, as a result of scientific research, be prevented or cured. There immediately follows an overwhelming demand for the new product by the medical profession and laity; and later the public, lulled into a false sense of security, casts responsibility for the occurrence of that particular disease on health officials and the medical profession, and largely neglects to take advantage of the well-established benefits of the new specific remedy. As an example, one need only mention smallpox for which there is an absolute preventive in vaccination. Yet public indifference, inadequate law and blind and stupid opposition permit this disfiguring and often fatal disease to prevail throughout a large area of this country to an extent not equaled anywhere else in the world—a national disgrace.

What has been the history of diphtheria in which we are at this time especially interested? The news of the discovery of the diphtheria organism caused rejoicing throughout the civilized world and, as usual, predictions were made that a remedy would be found for its cure. Such a remedy was forthcoming in antitoxin. Its almost immediate and widespread use caused a sudden and marked fall in the fatality rate from diphtheria as well as a reduction in the morbidity rate. Yet, year after year, many deaths occurred from the disease due to neglect to administer antitoxin or to its administration so late as to be ineffectual. It was growing to be more and more evident that antitoxin, notwithstanding the fact that it had saved millions of lives and prevented the spread of local outbreaks, could not solve the problem of eradicating diphtheria.

Again the research workers set their minds to the task of finding a remedy which would confer not temporary but lasting immunity against diphtheria. When, largely as a result of the work of William H. Park and his associates, such a remedy was made available in this country

and its value demonstrated, the announcement was received by the public and medical profession, grown accustomed in the meantime to many new discoveries in the field of preventive and curative medicine, with more or less indifference. Except in a few areas throughout New York State and elsewhere in the country where a campaign for the eradication of diphtheria was intensively carried on, the value of the widespread use of toxin-antitoxin was but too little appreciated, notwithstanding the unquestionably favorable results that had been obtained. It became quite evident, therefore, that a campaign of education must be inaugurated in order that the public should be informed as to what could be accomplished by the routine use of this remedy.

The research worker and the clinician are only able to announce to the world the results obtained by a new specific in the prevention of disease. Thus, every essential fact regarding diphtheria, its cause, prevention and cure has been made known. This is, perhaps, the most perfect triumph of laboratory research; and yet diphtheria continues to kill, year after year, thousands of human beings. It devolves, therefore, upon public health officials, the medical profession, their coworkers in public health, state and local educational authorities, nonofficial agencies and business organizations, such as insurance companies, to band together in a supreme and continuous effort to bring the facts to the public and induce it to utilize, on a far-reaching scale, the remedies against diphtheria which medical science has placed at its disposal.

The present campaign against diphtheria in the State of New York is being conducted, as it should be, under the general direction of the state and local health authorities. This places it upon an official basis and brings to its use all the prerogatives and powers conferred by law upon such officials, and makes available to the medical profession and the public the material for immunization which is officially guaranteed as to purity and practical freedom from disagreeable after effects. The campaign, however, could not possibly be a real success without the coöperation and support of other agencies. The work contemplated and already being done is by no means identical with that of stamping out, by health officials, of sudden outbreaks of infectious disease. We are dealing with a disease which is endemic and which, largely on account of the existence of chronic carriers, unrecognized cases and inefficient quarantine, is always present to an extent which varies only with the seasons and the years. It is not a matter of pulling up by hand one or two weeds from the garden but of a systematic and long continued plowing of the whole area and thereafter keeping it clean.

At the present time in New York State, we are especially fortunate in having very close coöperation between the medical profession, state

and local public health officials, boards of education and unofficial agencies together with the support of the public and press of health activities which have been demonstrated as in the interest of the general welfare. In this campaign the medical profession must be counted upon to do a large share of the actual work of immunization. Unless the practicing physician can be convinced of its value and that it is his duty to advise immunization, especially of those of his patients of the preschool age, the war on diphtheria must result in disappointment.

A few months ago, there seemed to be a certain hesitancy among the medical profession to undertake this work personally. In many instances, physicians preferred to have it done by the health or school authorities; in some instances, unquestionably, because they believed that toxin-antitoxin was not entirely harmless and required a person with special experience for its proper administration. It is believed that this mistaken conception has been largely overcome by the distribution of pamphlets and by public addresses dealing with the theory and practice of immunization against diphtheria. The endorsement of the campaign by the State Medical Society and many of the component county societies, and the expression of the willingness of practicing physicians generally to take part in it give assurance of ultimate success.

But the medical profession alone is not in a position to inaugurate a campaign of this kind. It would inevitably be accused of acting from selfish motives. Furthermore, the average physician is a poor propagandist. The public health authorities, state and local, on the other hand, by circulars, radio talks and public addresses, can do a great deal toward interesting the public. But in their case also there is a multiplicity of other work which must be attended to, and so only a limited amount of time, effort and funds can be devoted to special public health education. The campaign, therefore, must largely devolve on unofficial organizations engaged in public health work which have local representatives, scattered throughout the whole state, who, being persons of standing in their respective communities, have the respect and confidence of their fellow citizens.

Extra funds for this work must, of necessity, be provided. Local officials have already been urged, and in a number of instances have acted upon the recommendation, to provide funds in their budgets for the conduct of this work. Further funds have been forthcoming from insurance companies whose interest in lowering the death rate, from any cause, is perfectly comprehensible.

Diphtheria is essentially a disease of cities and is spread from the cities to the surrounding rural districts. In a general way, it may be stated that the latter will be fairly well protected if the residents of

cities are largely rendered immune. For this reason our efforts should be concentrated first upon large centers of population and, by preference, those places in which diphtheria has prevailed extensively for a number of years. There are many details to be worked out in conducting a local campaign, excellent suggestions for which are contained in a pamphlet* issued by the State Charities Aid Association and widely distributed throughout the state. They can hardly be improved upon. Each locality, however, must map out its work according to the conditions (social, racial, economic and political) which exist. Opposition is sure to be encountered and is already making itself felt, but to such a slight degree as to cause gratification. Allied against us is every variety of quack and charlatan and those who, under one guise or another, oppose each scientific attempt to further the interest of the public health. But in this respect again, New York State is far more fortunate than many of her sister states. The vast majority of the people are more than willing to help in protecting and improving the public health and show, as a very general rule, respect for and willingness to obey the public health law.

In closing, I desire to confess that when this campaign was first suggested and carried with it the slogan "No diphtheria by 1930," I was very much inclined to believe that it was too ambitious and the results unobtainable. But, at the present time, with the whole-hearted support that it has received and in the absence of such important opposition as cannot be foreseen, I firmly believe that the campaign is going to be successful to a very great extent; and that the time will come, not possibly when there will be no cases of diphtheria, but when outbreaks of this disease will be of so rare an occurrence that they will be handled with the promptness and efficiency that sporadic outbreaks of smallpox now receive, instead, as at the present time, of being regarded as something to be expected, beyond our control and, therefore, to be accepted with complacency. Influenza and other respiratory diseases and poliomyelitis, in spite of the sage advice which public health officials feel obliged to broadcast regarding them, are practically beyond our control. The failure, however, to control and ultimately to eradicate diphtheria will in the future be taken as evidence of official inefficiency, bad citizenship and indifference to one great cause of human suffering and death.

At the close of this session Dr. Nicoll introduced the following resolutions on diphtheria which were referred to the Committee on Resolutions and with slight modifications passed by them.

* Eradicate Diphtheria—A Campaign Handbook published by the State Charities Aid Association, 105 East 22d Street, New York City.

CAMPAIGN AGAINST DIPHTHERIA

RESOLUTIONS ON DIPHTHERIA

WHEREAS, ten thousand lives are sacrificed needlessly from diphtheria in the United States each year, 90 per cent of which deaths occur in children under five years of age, and

WHEREAS, science has now given to us a means whereby complete protection against this disease may be secured by the administration of toxin-antitoxin, with the result that the vast majority of people so immunized would never contract diphtheria, even though exposed to it, and

WHEREAS, ten years of experience have proved the entire practicability of eliminating diphtheria from a community by widespread immunization of school children, and more particularly of children from one to five years of age, therefore be it

RESOLVED, that the health workers of the nation assembled in the American Health Congress with the best interest of the children of America at heart, strongly urge upon the attention of the people of the United States the opportunity thus afforded them to banish diphtheria as a menace to their children, and be it

RESOLVED, that this Congress urge upon the fathers and mothers of the land that they seek this protection for their young children either from their family physician or by taking advantage of the immunization service afforded by boards of health, clinics, health centers and boards of education, to the end that diphtheria may be eliminated from the United States.

JOINT SESSION WITH THE CHILD WELFARE SECTION OF
THE NATIONAL ORGANIZATION FOR PUBLIC HEALTH
NURSING

Presiding: PHYLLIS M. DACEY, R.N., *Superintendent, Visiting Nurses' Association, Kansas City, Missouri*

The Normal Preschool Child

Normal Growth as a Public Health Concept

ARNOLD GESELL, M.D., *Director of Yale Psycho-Clinic, New Haven, Connecticut*

NORMAL GROWTH AS A PUBLIC HEALTH CONCEPT

ARNOLD GESELL, M.D.

Director of the Yale Psycho-Clinic, New Haven, Connecticut

GROWTH is one of the most significant terms in the vocabulary of hygiene. In some respects the term growth, or development, has a meaning more pregnant even than the word health. Growth carries a more dynamic connotation; it organically ties the present with the past and directs it toward the future; it places an emphasis on the total economy of the individual and a premium upon personalized periodic supervision. This paper will deal chiefly with the feasibility and desirability of applying standards of mental growth as an aid to promoting the mental health of normal children. Mental hygiene, as a phase of public health, remains a rather nebulous aspiration, unless we can translate it into some of the same procedures and approaches which general health work for children now embodies.

THE SCIENTIFIC STUDY OF GROWTH

What is growth? It is, of course, a concept to conjure with. If we try to formulate its innermost meaning we are brought to the very margin of the mystery of life. Metaphysically, growth resists definition; and if we insist too stubbornly in a philosophical formulation of its nature, we readily fall prey to vitalistic and mystical modes of thought.

In spite of this metaphysical refractoriness, growth constitutes a scientific problem of major importance. Indeed, growth constitutes one of the central problems of biology. Conspicuously true is this in the fields of experimental biology, and in the new embryology with its emphasis on developmental mechanics. Anatomy has ceased to be a descriptive science dealing with static completions; it investigates the origins, the plasticity and the modifiability of structure. Biochemistry is interested in the energetics of growth, and its regulatory factors. Biometry is interested in mathematical formulations of growth laws and constants. Psychobiology is concerned with the developmental nature and origin of all organic behavior, and with the genesis of both human and infrahuman conduct.

No phantasmagoria of fairyland was ever half so interesting as the

experimental investigations of biological and medical science, which are now revealing bit by bit the mechanisms of growth. These investigations are picturesque in their diversity, but they also promise generalizing principles which will some day be synthesized from the accumulating data.

Growth is being studied in all forms of life: unicellular and complex; in plant and animal; in individuals and in groups. Curves of growth have been plotted for microscopic colonies and for populations of the earth. Studies range from the minute cell count delineation of the development of the nervous system of the salamander, to broad quantitative studies of the physical growth of the Chinese.

The experimental investigations deal in amazingly ingenious and daring ways with the alterations of the growth process. The growing organism is subjected to modification of temperature, of light, of position, of chemical and nutritional conditions. The limbs of the salamander are transplanted from one part of his body to another; the shell of the incubating egg is varnished; the growth of grafted embryonic fragments of the chick is observed in detail; the endocrine system of the tadpole is surgically altered to note the developmental results; growth disturbances are produced by radium emanation or by artificial changes in chemical conditions. Tissues detached from the body are preserved and "grown" in culture media.

Innumerable studies have been made through dietary modifications. Even the effect of irradiated sawdust on the growth of the white rat is known. Some of the dietary factors are so well understood that the rate and the character of the growth of the white rat can in considerable measure be manipulated by man. Under experimental conditions the scurried palsy and inertness of the misfed guinea pig can be replaced by normal restoration of function. It can be done with amazing quickness by the administration of a few miraculous bits of green lettuce.

THE VALUE OF SCIENTIFIC KNOWLEDGE OF GROWTH

The scientific attack on the problem of growth is of comparatively recent date. The countless studies now in progress will themselves grow in range and depth, and yield new insight into the factors which determine all growth.

It is well to remind ourselves that significant advances in the hygienic regulation of growth can come only through science and more science. The layman, possibly even the fundamentalist, should acquire a dim respect for those technical studies of the laboratory, which though they may deal with the life processes of *Amblystoma*, or rat, have none the less a basic bearing on the interpretation of human growth. The funda-

mental laws of growth are so universal that they may be sought and found in any form of life.

We have a convincing example in the study of rickets—a growth disease of the child, which can be experimentally reproduced in the chick and in the rat. The problem of rickets has been approached from many angles, by the physiologist, the biochemist, the pathologist, the physicist, and the physician. Although there is yet much to be learned, the critical factors in the production and prevention of this common growth disease are becoming apparent. In the new knowledge of cod liver oil, sunshine and the ultra-violet ray we have brilliant evidence of the significance of science in human welfare—the significance of *prediction* and *control*. Dr. Alfred Hess has reminded us that this precious new knowledge has for the most part arisen during the past five years. It did not fall from the skies; it did not spring from the seas; it is the lawful by-product of research both in pure and in applied science—in biological, physical, agricultural and medical laboratories. If the world had been in firm possession of this new knowledge of rickets, with its implicit prediction and control, at the time of the World War, the nutrition and growth of thousands of children would not have suffered.

The significance of science in the protection of the welfare of children needs constant reaffirmation, particularly in America where we have glimpsed a vast latent fund of prescientific prejudice. It has taxed the wit of the race to acquire the medical knowledge which now permits babies to grow up, where they formerly languished or died. If this knowledge were cast overboard, there would be a return to imperfect folklore, to erroneous superstition; ignorance, quackery, and uncritical benevolence would assume control of the feeding of young children. Scientific medicine is the only safeguard against such a possibility; and the public health nurse as the vehicle of this scientific check is the everyday defense against a relapse into old conditions.

One of the prevalent quasi-primitive notions holds that growth is pre-determined, that it is so natural that it takes care of itself, and that there is little to be done about it. The too popular notion that the child will outgrow all his handicaps has a similar logic. Now the scientist would insist that growth is essentially lawful but also profoundly plastic. It is governed by certain limitations; but within those lawful limitations it is marvelously adaptive, and likewise lawfully responsive to both internal and external conditions. If in the laboratory, growth expresses this responsiveness at every turn, why can we not hope to bring the whole cycle of child growth gradually under greater control? The laboratory may never furnish us with the precise methods, but it has already provided us with the faith that systematic health supervision

will lead to increasing regulation of the organic growth of children. Is not the concept of complete growth becoming the new directing ideal in all child hygiene?

The fundamental advantage in this concept lies in the fact that it goes far beyond the traditional ideas of health and disease, and comprehends in a dynamic and relative way all types of children. It embraces the so-called normal child. In fact it places a new premium upon normality, and gives us the impulse for constructive as well as preventive measures for this normal child. The concept of maximum growth also reveals both the scientific and the practical value of standards of development.

THE VALUE OF STANDARDS OF GROWTH

There is some misconception as to the use of standards in the field of child hygiene. It is contended that there is great danger of over-standardization; that our whole civilization is over-standardized; that children are not factory automobiles. It is also sagely suggested that there is no such thing as a normal child; that all children differ; that no two are alike, and of all things we should avoid standardization of children.

Much of this argument, of course, is gratuitous. The scientific and the practical function of the standard in child health work is measurement, not compression into a mould. The standard is a formula which represents a bit of information which may be used as a landmark of reference. We use the height and weight chart not to standardize physical growth, but to interpret it. Standards are the lenses through which we observe the child's growth to determine whether that growth is pursuing a favorable course. If we do not use clear, sharp cutting lenses, we cannot catch our problems early or make our treatment timely.

The hygienic supervision of physical growth, therefore, depends upon standards. We must admit that our present physical standards are extremely inadequate and even imperfect; but just as the evils of democracy can only be cured by more democracy, so the imperfections of standardization can only be corrected by more standardization. Indeed, this is just what is happening in the scientific study of physical growth. Anthropometry is working out multiple standards and correlations which can be made to bear more discriminatingly on the individual variations with respect to growth. There is in Germany a new science in the making called "typology," which is endeavoring to elucidate the whole problem of mental and physical types, and this elucidation cannot be accomplished except through quantitative studies which inevitably lead to the formulation of standards.

Moreover, the individual clinical appraisal of any given case depends upon the application of standards. The more numerous and accurate the available standards in any given instance, the more adequate will be the clinical appraisal. Even in the fields of public health nursing, of social work and of schoolroom teaching the importance of vital discriminating standards is constantly asserting itself. Professional training in these fields to a large degree consists in the acquisition of working and workable standards.

In the supervision of physical growth and bodily health it is certain that the development of technic will carry with it an increase rather than a diminution of standards.

STANDARDS OF MENTAL GROWTH

In the field of mental hygiene is this not equally true? The very paucity of our public health provisions in this field may be due to a lack of workable standards and of practical technic. If the growing mind, like the body, is to come under systematic health supervision, we shall probably need a greater equipment of standards and norms as a basis for procedure.

Or is the growing mind altogether too elusive, altogether too intangible to be made an object of public health concern? If we cling too tenaciously to certain prescientific conceptions about the mind, the prospect of a health supervision of the mind seems nothing less than chimerical. But it is not necessary to be prescientific! It is not necessary to make an absolutely drastic distinction between mind and body. From a medical viewpoint we must approach the whole problem of the developing mind through the route of observable behavior. We should regard this behavior as a functional index of the physiological or the developmental status of the individual. Whatever academically our psychological theories may be, medically we are primarily interested in behavior as behavior—in the adequacy, the maturity, the balance, the completeness of behavior—in the ability of the individual to adjust his own life and to adapt it to that of others.

The growth of mind scientifically conceived, therefore, is essentially the development of a sequence of behavior values which are correlated with the maturation of the nervous system. From this point of view even the infant has a mental factor. Although the highly subjective psychologist might be reluctant to credit him with a mind, the psychobiologist would insist that the infant has a psyche which is already well in the making at the time of birth.

Even the infant has some degree of personality. His personality is

a growing multitude of patterns of behavior: of eating, sleeping, playing, obeying, of liking, of disliking, of fearing, of avoiding, of assertion. Although these patterns of behavior bear the impress of his environment, they are also the expression of his native capacity and of his developmental maturity.

At the Yale Psycho-Clinic we have made studies of several hundreds of normal infants, which show that the curve of mental growth tends to follow lawful lines. Although we have not found two babies exactly alike; neither have we found two normal babies of the same age who were absolutely unlike. The underlying similarities of given age levels constantly assert themselves. Even in the defective child there is a significant tendency to approximate a subnormal level of behavior. In other words, the development of behavior, or, if you will, the growth of the mind, obeys certain laws of organic sequence. By means of appropriate tests and behavior norms, we may record and appraise the behavior status of the growing child. We may consider this status from the standpoint of motor development, language, general adaptive behavior, and personal-social behavior. His personal-social behavior concerns his emotional life and his capacity to make social adaptations. It is particularly important from the standpoint of mental hygiene.

The rate of mental growth in infancy is rapid. It rivals or exceeds that of stature. We are now making formulations of the monthly increments of behavior, in order to define more clearly both the common and the variable aspects of mental growth. Again we may point to the scientific and practical necessity of standards. We cannot follow the growth of the behavior tree unless we make ascending cross-sections, which will furnish us with normative pictures. Individual variations cannot be perceived, or expressed except in terms of working norms.*

A vast amount of research will be needed to give these norms precision. Meanwhile it is important to recognize that such psychological norms are attainable, and that standards of mental health are as legitimate and as feasible as standards of physical status. Even in our present state of comparative ignorance it is possible to lay down for various ages of infancy and childhood certain concrete minimum essentials of mental health expressed in tangible behavior terms. The concept of normality in the field of mental growth is just as valid as the concept of normality in the field of physical growth.

* Arnold Gesell. *The Mental Growth of the Pre-School Child*. Macmillan Company, New York, 1925. Chapter VII.

THE CHARACTERISTICS OF MENTAL HEALTH

In order to make the problem somewhat more concrete, we can venture the general question: What are the mental health characteristics of the normal child?

1. *Wholesome habits of eating, sleeping, of relaxation, and of elimination:* These are often regarded as "purely physical" matters. Actually they are of basic psychological importance. They are ways of living; they require a proper organization of the nervous system. The child who is not well trained in these everyday habits has not learned even the first letters of the alphabet of nervous or mental health.

2. *Wholesome habits of feeling:* Here again we deal with the organization of the nervous system. Mental hygiene is much concerned with the organization of emotional life. Happily, the feelings respond to training. It is all wrong to think that temper tantrums, morbid fears, timidity, jealousy, sensitiveness, suspiciousness, and other unhealthy mental states are beyond control.

The thoroughly normal child has positive emotional habituations which make for good nature, for sociability, for self-control, and even for a measure of sympathy and coöperativeness. Consistent training and a favorable home atmosphere bring him under the spell of socialized goodwill. Through praise rather than scolding, through encouragement rather than domination, through happiness rather than failure, he acquires an elementary, optimistic philosophy of life. He acquires also a sense of values and a sense of security which are very important for his health of mind.

In his way he may also acquire a philosophic sense of humor, which can be set down as one of the prime essentials of normal mental health. This sense of humor will serve him well even as a child, and still more as an adult.

3. *Healthy attitudes of action:* Self-reliance is a cardinal virtue in the code of mental health. Growing up in the psychological sense means attaining sufficient stamina to meet the demands of life squarely on one's own resources. It is a steady process of detachment, first from the apron strings, later from the home itself.

Just as the grown soldier needs morale to stand the test of battle, so the young child needs a kind of self-confidence, which will enable him to meet the realities and discomforts of life. The ability to see reality is, of course, a mark of mental health. Therefore, the wise parent from the beginning builds fiber as well as happiness into the child's mind.

Normality of mind can, therefore, be formulated in terms of (1) wholesome personal habits of living, (2) wholesome habits of feeling, and (3) healthy attitudes of action. Although these are broad specifica-

tions, it is apparent that they may be made very concrete in actual application. The goal of mental hygiene ceases to be nebulous when we make a genuine attempt to realize it in terms of child guidance and parent guidance. In the parent-child relation we have a very real point of departure which is accessible as a part of existing child health work.

DEVELOPMENTAL SUPERVISION OF THE PRESCHOOL CHILD

The welfare of the growing mind of the child hangs in no small measure upon the quality of this parent-child relation. It is possible to bring this factor gradually within the scope of infant welfare and child health center activities. Even in the regulation of nutrition, the physician and the nurse must reckon in behavior terms with this parent-child relation. The supervision of nutrition can thus be broadened steadily to include certain psychological factors which affect mental health. The practice of periodic reexaminations should make it possible to give consecutive and systematic regard to this influential parent-child relation. It will be impossible to suddenly launch a comprehensive, all inclusive program of supervisory mental hygiene. It will not be impossible to gradually build up such a program by a judicious expansion and elaboration of our present arrangements for the supervision of physical welfare.

The nutritional supervision of infants did not begin with subtleties. The first step was to purify unclean milk and to cast out heavy solids like pickles and sausages. In the field of mental health likewise we might well begin with a similar reduction of the grosser faults of child care. These faults in all too many cases still include beating, slapping and rough handling. Excessive shouting, scolding, threats, and bribes still figure too much in the daily lives of young children. A calm, kind, consistent parent-child relation is the most important essential in improving the mental health of these young children. Is it not possible that physician and nurse on hygienic rather than homiletic grounds can do some necessary spade work in this vineyard?

This discussion has been rested on broad and general arguments. If, however, these broad considerations are sound, it is almost certain that the hygiene of mental growth will come increasingly under public health auspices. Normal growth must then figure as one of the working concepts of child health work. Growth, whether of mind or body, will continue to be one of the basic problems of biology and of medicine. It is a vital problem which is already yielding to scientific formulation and coming within the province of prediction and control. Inasmuch as growth constitutes an organic cycle of lawfully conditioned phenomena, the growth of mind of the young child must some day fall definitely

within the purview of public hygiene. Even now the mental growth as well as the physical growth of the child needs more systematic protection.

THE PRESCHOOL CHILD IS POINTING THE WAY

Psychologists, psychiatrists, kindergartners, primary school teachers, home economics instructors, leaders in public health, parents' clubs, mental hygiene societies, have found themselves side by side in the new interest in the preschool child. It is not a wave of passing interest. It is a fundamental social movement springing out of certain basic issues of civilized life.

It is a social movement comparable to the democratization of elementary education. America has made an unsurpassed large-scale achievement in public education. Through her system of elementary schools all the school children of all the people are reached, whether in crowded tenements or in the sparsely settled rural regions. In principle, and to a remarkable degree in actual fact, every child who may profit by ordinary school instruction has an opportunity to secure such instruction.

We must now do something even more basic. We must try to equalize the earlier developmental opportunities of earlier childhood. This can only be done by replacing the historic concept of education with the modern biological concepts of growth and development—initiating a policy of developmental supervision with the birth of the infant and projecting that supervision medically and educationally throughout the entire period of preschool childhood. Thus, the concept of normal growth leads to growth guidance.

When Do Deviations from the Normal Become Physical Defects?

Presiding: RICHARD M. SMITH, M.D., *Assistant Professor of Child Hygiene, Medical School, Harvard University, Boston, Massachusetts*

What Constitutes Mental Health in Childhood

EDWARD A. STRECKER, M.D., *Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia, Pennsylvania*

What Are the Signs of Health—With Special Reference to Nutrition

HUGH CHAPLIN, M.D., *Instructor in Diseases of Children, College of Physicians and Surgeons, Columbia University, New York City*

What is Good Posture

ARMIN KLEIN, M.D., *Director of Posture Clinic, Massachusetts General Hospital, Boston, Massachusetts*

WHAT CONSTITUTES MENTAL HEALTH IN CHILDHOOD

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THE TASK of plotting the limits of normal behavior is not a simple one. I am somewhat heartened by the reflection that the boundaries which have been drawn by others are certainly elastic and flexible. A noted psychiatrist compared the play-behavior of a group of children who were in a mental hospital because of behavior disorders following epidemic encephalitis with the conduct of children in Rittenhouse Square, and was able to award the former the more favorable opinion. Rittenhouse Square is the place where the sons and daughters of Philadelphia's elite disport themselves. The normal child has been called a polymorphous pervert, and has been accused of playing the primary rôle in the grim tragedy of Oedipus Rex, and still he has survived. It is unlikely that anything I may say can injure his somewhat spotted reputation.

CRITERIA OF BEHAVIOR

To be intelligible I must have some objective criteria. Personality is a highly elusive quantity, but it needs to be seriously considered, since we are forced to measure it by behavior. In other words, and with certain exceptions, when the conduct of a child consistently and actually falls within normal or average limits then it may be taken to be the expression of a basically sound personality while on the other hand if the personality is distorted or sick it will give rise to abnormal action which either reveals or attempts to conceal abnormal thought and mood.

How is personality developed? The limitations of this paper forbid anything more than an attempt to expose a limited cross-section of this complex and intricate growth. Whatever more it may be, the child is certainly a sensori-motor mechanism. Like an animal it is stimulated by sensory impressions, and like an animal it gives forth a response. However, the animal is capable of only a limited set of experiences, and it is likely that they remain discrete, and isolated. The behavior is quite simple. In the child the experiences are infinitely greater in number and more complex in type. Furthermore, they are rapidly con-

nected, and associated with each other so that responses soon take on a most elaborate and intricate character. Thus a kind of mental pattern, which has numerous bypaths, intercommunications and recesses is soon wrought and this pattern, in some sense moulds the personality.

It is futile to judge behavior without reference to environment. Often as I listen to a dramatic recital of the "terrible" and "awful" things which this or that child does or says my mind is engaged in a consideration of the surroundings in which the particular child breathes and moves and lives. What are its assets and its limitations; its opportunities and its deficits; its sins of commission and its crimes of omission? Does it leave no choice and make so-called abnormality the only logical and possible response? If it does this, then the conduct is not intrinsically pathological. No true scientist would be guilty of reporting the behavior of a laboratory animal without allowing for the characteristics of environment, and yet children are expected to tread on a standardized highroad even though the conditions and circumstances of their surroundings have effectually barred and sealed its entrance! When I attempt to sketch an outline of average behavior you will have in mind that I am assuming the existence of an environment which is at least potentially accessible in the right direction and capable of furnishing the needed ingredients in something near the correct quantity and quality.

THE LIMITATIONS OF AVERAGE BEHAVIOR

What then may we expect from a child who is not doomed by reason of a badly tainted ancestry and who is placed in a satisfactory environment? One of the earliest tokens of the inherent stability of the nervous organization is the desire for and the execution of physical motion on the part of the infant. Here is the opportunity to acquire new, pleasurable and varied sensory experiences, and to establish suitable responses. So imperative is this phase of development that its absence or very considerable reduction will not only halt mental growth, but will even impede or prevent the establishment of organic connections in the central nervous apparatus. If no physical reason exists then a marked reduction of motor movement is somewhat indicative of defective mental health.

To watch a group of children at play is to know at once how potent is imitation in the acquirement of mental soundness. In the playing of "house" or "school," which are historical childhood games, almost the entire play structure is supplied by the imitative faculty. The things the parent or teacher does or says, the way in which they wear their clothing, their mannerisms, and even the very inflections of their voices

are faithfully portrayed. Long before the elaborated play period, the normal child has acquired vocal language largely through a process of imitation. If a child who is not too greatly handicapped physically does not to some extent repeat or essay to repeat the happenings in the immediate environment, then the mental health of that child comes into question. When the behavior content is consistently a thing apart, and has no counterpart in the environment, then one may begin to think in terms of distorted personality, various odd, eccentric and bizarre behavior traits which may even progress to that terrible psychosis—*dementia praecox*. You may object that child genius is often above and beyond imitation of environment, and my reply would be, "Yes, genius and potential mental disease—they are very similar."

The trait which has been named suggestibility is an indirect, refined and subtle form of imitation. The boundary line between normal and abnormal territory is here very broad, but two extremes exist which are at least the precursors of the pathological. The first involves an almost total resistance to external influence, and constitutes a real inability to accept any influences flowing from the environment. It is the prototype of the strange negativism of *dementia praecox*. The second extreme is the constant and abnormally easy acceptance of every suggestion, so that the child behaves like a delicately adjusted weather vane. Its pure expression is to be seen in adult hysteria. Unfortunately, the adequate amount of suggestibility is not measurable, but its pathological deviation in either direction is fairly obvious and no psychological tape measure is needed.

Curiosity is obviously such a common and essential trait, that it is the heritage and possession of all children with the possible exception of the idiot. Qualitatively it is a sign of normality, but it is naturally extremely difficult to decide when it is beyond the limits of mental health, either in the direction of excess or deficit. Almost every male parent when he is the subject of a merciless barrage of questions from his offspring, believes that the child is abnormally curious. Almost never is he right. I do not believe I have ever seen a child whose curiosity was so excessive that it could be labeled pathological. On the other hand the child who does not pass through the questioning phase, and apparently cannot be stimulated to want to know, and seems unable or unwilling to take any steps to acquire bits of information is probably not well balanced in his growth.

The general assumption concerning the abnormal nature of sex curiosity is so erroneous that it should be given particular mention. Usually children are more curious about sex than about other matters simply because sex has been attractively clothed in mystery. One does not

face the question as to whether sex curiosity is to be satisfied or not. The real question is will it be satisfied in a natural and constructive manner, or is the child to be left to tap ever available and harmful sources of information. Such behavior as the inspection of his own or the sexual organs of other children is under the usual circumstances not a morbid phenomenon. I am inclined to believe that unless the conditions are quite exceptional, the absence of any sex interest during childhood is an extremely dangerous characteristic. Naturally, sex curiosity may become so excessive and concentrated that it passes normal bounds, but as often as not, the responsibility is in the environment rather than in the child.

There is a trait called the love of power which in everyday, common sense psychology amounts to a desire to be able to control the environment, chiefly for purposes of personal satisfaction. It is not a strange phenomenon in adult life and it has its roots in the days of childhood. All normal children love power; they like to hold the center of the stage. This is not at all remarkable, since in infancy a child is able to control immediate surroundings to a considerable extent. Everyone tries to anticipate the needs and desires of the baby.

However, there comes a time when the child can no longer have its own way, and must begin to conform to the wishes and rights of others. It is not an easy matter to know just how much difficulty the normal child should experience, and manifest by behavior, in the relinquishment of infantile power. In some children the struggle is obvious and almost entirely on the surface; in others the little tragedy is hidden from adult eyes. This much we do know: A certain amount of love of power is natural and normal; its necessary sacrifice entails some degree of suffering on the part of the child; objective demonstration of the unwillingness to abandon power and be relegated to the commonplace background of conformity to social demands is to be expected from the normal child, but finally, absolute inability to make this compromise and adjustment as revealed by conduct which by its very persistence rather than by its nature, becomes antisocial is one of the criteria of failure to attain mental health.

Practically all normal children pass through a phase of savagery and romancing. Then they want to run away from home and kill Indians, and they tell tales which would have added to the fame of Baron Munchausen. They are merely stages in normal childhood development, although their manifestations are commonly and erroneously regarded as abnormal.

Freudian psychologists regard savagery as one of the phases which the child recapitulates in the enactment of the condensed, but vivid

drama of the evolution of the human animal from primal to civilized behavior. Such discussion is not within the scope of this presentation. In attempting to delineate the limits of childhood normality, I should have to say, that complete or striking absence of what is commonly designated "animal spirits" must raise a grave doubt. As a practical point, absence of any degree of the competitive spirit in the playgames of children makes the issue doubtful. Life is life and must be judged by the standards of the age in which we live. The veneer of civilization which we have been at such pains to apply is still pathetically thin, and often wears through. There is still the grim struggle for existence. The child who feels no thrill in victory will have difficulty in finding a place in the world of reality. The very artificiality of his position will often condition an intolerable situation from which abnormality offers an easy escape into unreality.

I regard romancing in many instances as evidence that the imagination is beginning to grow. Frequently it helps to quiet the gnawing unrest of a sense of inferiority. In this case, it in itself may not be abnormal though the inferiority may be. In short, it is perhaps fair to say that savagery and romancing which come to the surface in such bizarre and fantastic word and deed are not proof of mental ill-health. Their persistence long beyond the usual period is a matter which needs careful investigation.

With certain limitations, intellectual capacity is capable of fairly accurate measurement. Here again, academic rigidity is the hall-mark of ignorance of true childhood psychology. Mental defect is a very different thing from mental retardation. The latter is a condition of intellectual backwardness which is conditioned by some handicap either in the body of the child, in his environment or in his emotions. It is recoverable. True mental defect is hopeless. It is an anatomic failure or an early cessation of the brain growth and just as he who is blind cannot be expected to see, neither can the child who does not have sufficient cerebral capacity, be expected to put forth a normal amount of intellectual energy.

He who feels that he can casually give judgment concerning the normality or abnormality of the moods or emotional life of a child is indeed courageous! It is the valor of ignorance. The widest latitude is an everyday occurrence and inconsistency is the rule. To find a prototype of the mood variations in normal children I am forced to go to mental disease in adults. The intense psycho-motor activity of acute mania is usual in the play of normal children. The profound depression of acute melancholia is not uncommon. It is remarkable how time tempers memory and the adult who is constantly sighing for a return

to the golden days of his childhood seems to have no recollection of its grim tragedies. Even the mood disharmony of dementia praecox with its odd contrast between feeling, thought and behavior, and the retirement from the world of reality, may be found in normal children. I should say this much of the complex riddle of the emotional life of childhood: If the stimulus or cause of the mood disturbance is such as is commonly reacted to by average children, then the behavior expression, however strange it may seem is not definitely abnormal. Finally, and more important, the normal mood life of a child is marked by its flexibility. When we find rigidity and undue persistences then we have a deviation which is serious.

I presume that something ought to be said in reference to the appreciation of moral values as a mark of normality. Those who are pessimistic would be inclined to say that the moral standards of the age in which we live do not furnish a very satisfactory criterion. It is true that the tendency to disregard the law which seems abroad on every side does not always constitute a healthy example for children to follow. In judging normal moral reactions we must accept the criteria which we have encouraged directly and indirectly, even though we continue to strive for betterment. In other words we cannot expect to receive more than we give. Here we have a rather shifting standard with a fairly firm foundation of instinctive moral sense and a more or less shaky superstructure made up of tradition, custom, and present-day conventions. This much seems clear. The major portion of moral sense must be acquired and imitation and suggestibility are the chief routes available for children. If the environment furnishes in fair quantity constructive moral material, not by precept but by example, and it is constantly rejected by the child, then there is a strong suspicion of badly balanced mental health. Naturally moral deviation may be influenced by such inherent factors as heredity or such accidental ones as epidemic encephalitis, "sleeping sickness," or severe head injury.

In this incomplete picture of the child who is healthy in mind, I realize that I have only scratched the surface. For instance, such a primary instinct as self-preservation is so obviously a part of all living organisms that its absence in the child is always pathological. Again, normal personality was not discussed in any detail. Personality is the sum total of all previous experiences and the responses to them, and its growth is somewhat dependent on the presence and healthy utilization of the psychological traits which have been mentioned.

To build a theoretical composite child, who is sound mentally, one should be able to use rubber as the main ingredient. The chief quality of such a composite needs to be elasticity and flexibility since to meet

the requirements of individual perfectly normal children a great deal of pulling and bending and pushing is imperative.

However, there should be included the ability and the desire to move, a certain readiness and willingness to imitate, some response to suggestion, a strong leaven of curiosity, an appreciable love of power, a dash of savagery and a seasoning of romancing. There should be intelligence enough to bring out these traits; enough emotional virility to impress the lessons which they teach and moral judgment to act as a kind of partial check. The marked diminution of these characteristics is a much safer measure of a sick mind than is their excess.

The final measuring rod is the ability to pass through the critical phases and make adjustments somewhere within the average time limits. The greatest tribute I can pay the child is to view him in the light of his adjustment-accomplishment record. Think of how varied and intricate are the adjustments which many children make! How increasingly complex these adjustments become year after year! To mention only a few of them is to outline a gigantic task. There are the organic adjustments, feeding, bladder, bowel, and so forth. Constant revision is demanded. Soon must come the surrender to the requirements of civilization in the matter of clothing, property right and in innumerable other directions. Then the upheaval produced by school life or the advent of a new baby in the household and the countless accidents and conditions of life all insisting that the ego be suppressed for the benefit of a larger unity. Then all the finer moral demands have to be placated. Finally, an entirely new set of love experiences are set into motion and they require an effacement of infantile and early childhood love life. Fortunately, there is a strong natural pull in the direction of successful adjustment making. The goal is the right to live mentally and physically in the actual and concrete world; to share in its rewards and pleasures and in its disappointments. Let us not forget, however, that there is at least a potential pull in another direction, away from the making of adjustments. The punishment for this course of action is to have to live mentally and perhaps physically in a world of unreality. Here, one is not permitted to play an active part in the game of concrete life, but there may be certain compensations—notably an absence of responsibility. After all, a true sign of mental health is the willingness to pay the price which one must pay before being allowed to actually live!

WHAT ARE THE SIGNS OF HEALTH

WITH SPECIAL REFERENCE TO NUTRITION

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BECAUSE of the increase of interest in malnutrition in childhood, the request is frequently made not only for a clear statement of signs of malnutrition, but also for a statement of positive signs of health.

A search of the literature has shown a surprising dearth of data bearing directly on health in childhood. This is especially true of thoroughly scientific investigations based upon satisfactory experimental evidence. Here and there one or more of the factors involved have been splendidly handled. The work on "The Physical Growth of Children from Birth to Maturity," by Bird T. Baldwin, Ph.D., deals with the growth factor of health in children in a very exhaustive manner. The question of variations in type of body build* has been extensively treated by Charles B. Davenport, Ph.D. With a few other exceptions we have been able to find little scientific data upon the general subject of positive health in childhood.

Numerous conversations with many of the most experienced pediatricists and physical directors in this country have shown that nearly all of them consider it unwise at this time to set down hard and fast signs of health in childhood. However, many workers with malnourished children, physicians, nurses, nutritionists and purely lay volunteers, have at the present time a very real need for some safe, workable list of the signs of health. For years physicians, having wide experience in the examining of children, have come to rely upon certain simple clinical signs as safe evidence of good health. For the time being and in the absence of a more exact and experimentally scientific standard, it is this list of clinical signs of health which we wish to present. Wherever possible we will point out where conditions deviate so far from this standard as to become physical defects.

A search for the proper signs of health takes one into subjects of

* Body Build: Its Development and Inheritance. Charles B. Davenport, Ph.D., Director, Department of Genetics, Carnegie Institution of Washington. Eugenics Record Office, Cold Spring Harbor, Long Island, New York. Bulletin 24, February, 1925.

normal anatomy and physiology. It has seemed best to divide the signs, to quote our presiding officer, Richard M. Smith, M.D., into the outward manifestations first of the well built body and second of the well functioning body. Let us take first the well built body.

MANIFESTATIONS OF THE WELL BUILT BODY

Eyes: The eyes are clear and bright, both focus directly upon the object looked at and move in unison. The palpebral conjunctiva are pink and free from inflammation. Definite squinting, generally meaning that corrective lenses are needed or that there is a granular condition of the conjunctiva, is an unhealthy sign. Also, though having nothing to do with the eye itself, dark rings seen about the eyes and often accompanied by a loose, baggy puffiness of the skin of the lower lids, are abnormal and often an evidence of general fatigue. Both this and the squinting are sufficient deviations from the normal to be considered defects.

Color: As a rule there is a distinctly ruddy color in the cheeks and somewhat in the skin of the rest of the body. To be sure, this is not invariably a sign of health. The hectic flush of fever and the almost unnaturally deep redness in the cheeks of certain cardiac children are examples in point. On the other hand, pallor of the skin is not necessarily a sign of poor health. Certain races have more or less darkly pigmented skins, while other races and certain families are noted for the whiteness of their skins. In these cases it would be misleading to consider anemic all who fail to have the ruddy complexion characteristic of the average Anglo-Saxon. A number of years ago when in Bridgeport, Connecticut, LeRoy A. Wilkes, M.D., noticed that there were certain public school buildings which were in a very bad sanitary condition. He also noted that the children in these schools looked unusually pale. Thinking to use this as a fulcrum with which to force the erection of suitable, modern schools, he made hemoglobin tests on about 500 of these children. Much to his surprise the resulting percentages were considerably higher than the children's appearance had indicated. He learned that these children were Polish and that their pale, muddy color was quite characteristic and normal for their race. However, rough as this color estimate must be at best, it is well recognized that if one judges by the color of the finger nails, lips, conjunctiva, tongue or ear lobes, a very practical index of the actual richness of the hemoglobin can be obtained. In considering color as a sign of health, only when there is a distinct pallor in these regions may one safely consider it a defect.

Teeth: The teeth of a healthy child are strong and placed far enough

apart for their alignment to be even. The grinding surfaces of the lateral teeth meet directly. The upper incisors and canines slightly overlap the lower, providing the scissor-like action intended for these teeth. All of the teeth are clean, smooth, well enameled and free from caries. The gums are firm. It is obvious that dental defects include not only dirty, carious teeth, but poor enamel, malocclusion and spongy, retracted gums.

Hair: The hair is normally plentiful in childhood and has a lustre due to the presence of sufficient oil. It is pliable. It may be long or short, fine or slightly coarse, straight or curly. All these are compatible with good health. Only when it is markedly scanty or dry and brittle as in hypothyroidism would it be advisable to consider the condition a defect.

Skin: A slightly moist, clear and smooth skin is another sign of health. The extreme dryness of hypothyroidism, the eczematous eruptions so common in childhood, or the distinctly over-moist skin such as is encountered during active stages of rickets and tuberculosis, are definitely contrary to the generally accepted signs of good health.

Subcutaneous Tissue: A plentiful supply of firm subcutaneous tissue is associated with good health. It is difficult to state exactly when there is too small a supply. When the skin hangs loosely upon the bones or muscles, when it can be raised in deep, thin folds between the fingers, then without question the supply is insufficient. It is just as abnormal to have the skin stretched taut over roll upon roll of fat. Years of clinical experience have proved that such a condition is more apt to be a detriment than an asset.

Muscles: When we come to consider the muscles it is only possible to judge them by their size and firmness. Physical educationists are still trying to determine satisfactory tests of muscular fitness. So far as we can discover, the tests considered most acceptable are too elaborate to be generally practical. We must remember that a healthy child does not necessarily show unusual muscular development. He shows rather a general muscular development of a sufficient degree to enable him to take part in the usual activities of childhood with complete satisfaction. Anything less than this would properly be classed as a defect.

Chest: The chest is broad and deep and capable of generous expansion. There are already considerable data as to how much expansion is to be expected at various ages. It is the flat, sunken chest or that with marked rachitic deformity and a very limited degree of expansion which is incompatible with good health.

Extremities: Straight extremities indicate good bone growth. Strong joints indicate well developed supporting ligaments and muscles. The

size of the joints fits into the general proportion of the limbs. Marked deformities of the extremities, such as club foot or flail foot following poliomyelitis, are of course defects. It is a question, however, whether even a considerable degree of bowing of the legs need be so classed. An older child with such a deformity may be in every other way perfectly healthy. It is quite generally known among professional baseball fans that the justly famed Hans Wagner had very noticeably bowed legs. His athletic prowess would seem to be proof enough that even extensive bowing need not prevent most efficient physical functioning. When the deformity has become extreme enough to hinder normal activity it is unquestionably a defect. It is true that we should continue to hold up the ideal of a perfect bony framework. Children would be surer of making efficient use of such a structure. Also, insistence upon the ideal would impress parents with the need of taking proper care of their children during infancy when the damage from rickets occurs.

Feet: A very high anteroposterior foot-arch is not so desirable as an arch of moderate height. Even a low arch cannot be uniformly condemned. Halbert L. Dunn* writes, "The best criteria of normal and abnormal arches are functional tests." It is therefore what it can do rather than what it looks like that determine the arch of good health.

The foot is normally held straight. This position not only enables one to cover the ground more rapidly but, what is of much greater importance, it favors the maintenance of a strong anteroposterior arch and preserves balance. The great toes also point straight forward. All too often as the result of tight, poorly shaped shoes these big toes are crowded over towards the other toes. This is not healthy.

Weight: We take up weight last in considering the signs of a well built body, not because it is less important than those just mentioned, but because it has so frequently been incorrectly considered the all important. It is unquestionably true that safer conclusions can be drawn if weight is always considered in connection with height and age. The Wood-Baldwin scale for the 5 to 18 years period, and the Woodbury scale from birth to 6 years are the best standards of this kind available. They have the unique attraction of providing an exact and easily determinable standard. But that in itself is a danger; it is a temptation for enthusiastic workers of moderate experience to be satisfied with this single measurement as a complete index of good health. Those who compiled the weight-height-age tables never intended them to be the sole index. The many additional factors which we have just

* The Statics of the Human Arch When Subjected to Body Weight. Halbert L. Dunn, M.D., Military Surgeon, Washington, D. C., 52:567 (June), 1923.

been discussing—condition of muscles, bones, fat, and so forth—must be given a place of equal importance. It is easy to see why a single index, such as that based on weight-height-age tables, cannot be safely used. Take for example a child who measures up to the average weight for his height and age. Those who use only this weight index would assume him to be well nourished. However, even a cursory examination may show that he is poorly nourished. He may have big bones but very little fat and poorly developed muscles. Or he may have small bones and yet make up in weight by a decided over-abundance of flabby musculature and fat. Neither of these conditions represents a well balanced nutritional state. It would seem to be important to consider the bone-fat-muscle ratio with the weight-height-age ratio.

Another reason why a weight index is not a complete standard of good health is that no weight tables yet compiled have taken sufficiently into consideration different types of body build. Although it is generally agreed that there are such types a great deal of investigation is needed to simplify the subject. If possible a practical method of placing each individual in his proper type should be generally available. Dr. Davenport's work upon types of body build gives as complete and definite information as we have been able to find. He believes that there are five types—very slender, slender, medium, fleshy and very fleshy. These differences may be due to racial or geographical peculiarities and also to hereditary influences. But even his method is too complicated for general use. We must realize clearly, therefore, that proper weight is a very important sign of health, but only when correlated with all the facts having to do with good nutrition can it best serve a safe and useful purpose.

Let us turn for a few moments to the manifestations of a well functioning body.

MANIFESTATIONS OF A WELL FUNCTIONING BODY

Expression: Healthy children have an alert, happy expression. It would be unsafe in estimating this characteristic to judge too narrowly. It would normally vary within fairly wide margins depending, for instance, upon the children's temperaments. Some are vivacious, others phlegmatic, some bold and many extremely shy. However, in general, all healthy children may be expected to appear contented and happy under natural circumstances. The close relationship between bodily and mental health cannot be too strongly emphasized. Any list of signs of health which ignores the effect of physical well-being upon character and behavior is incomplete. It is the reflection of good physical health in a child's character which makes the effort to improve his health worth

while. Therefore, an alert, happy expression is a very important sign of health. There may be so sluggish a mental response or such chronic irritability of disposition as to amount to actual defect. Poor hearing, uncorrected astigmatism and myopia, or intestinal parasites are frequently the causes of such conditions.

Muscular Coördination: Another manifestation of a well functioning body is prompt, efficient muscular coördination. We will take up a certain normal exception later on. Bodily repose, that is, freedom from constant unnecessary activity, speaks for a neuromuscular system under proper control. Healthy children are able to indulge in all ordinary exercises without undue fatigue.

Nasal Breathing: Still a third manifestation is unobstructed nasal breathing. It is only where obstruction becomes so severe as to produce distress, that one adequately realizes how absolutely necessary to life is a sufficient supply of oxygen. Limit this essential requirement continuously year after year, and it is self-evident that health will suffer. Large adenoids and tonsils or a markedly deviated nasal septum will do this if allowed to continue uncorrected.

Tongue: A clean, moist, red tongue indicates that digestion is satisfactory.

Posture: Good posture is one of the most essential manifestations of a well functioning body. As Dr. Klein is to take up the subject fully, I shall merely touch upon it. In the upright position, the head is erect, chin held in and shoulders even. Shoulder blades are best held flat across the back. The normal cervical and lumbar curves of the back are not exaggerated. The abdomen does not extend in front of the line of the chest.

This completes the list of clinical signs which we believe can safely be used to determine when a child is in excellent health. Such a list is often criticised on the ground that judgments based on it depend largely upon the personal opinion of the examiner and will vary with the extent of his experience and training and perhaps with his temperament. If he is a stickler for details he may judge more closely than if he is of a more easy disposition. If he is particularly interested in certain of these points he may unconsciously slight other points. This is true to a certain extent and would be a more legitimate objection if this type of standard were being used by those of only moderate training and experience in deciding whether questionable, borderline cases were actually undernourished. There can hardly be any objection to its use as a standard of *definitely good health*, which is at the upper extreme of the scale of judgment and not subject to the very natural uncertainty of borderline cases.

MODIFICATIONS OF SIGNS OF HEALTH

Before closing our discussion of signs of health we must briefly consider how differences in age modify certain signs. The influence of age upon the degree of muscular development is well known. Because a child rarely puts its muscles to heavy use during the first two or three years of life, it is the exception to find really powerful development at this time. Also between the ages of 12 and 14 years the arms and legs grow sometimes five to ten cms. in a year while the body retains for the time being, more nearly its childish proportions. It is quite a general experience to find that muscles have not kept up in development with growth of extremities. On the contrary, one of the most marked results of puberty is a definite increase in the power of the muscles. Since muscular development varies in this way with different ages, we must recognize that during the first few years, and at the normally awkward age of 12 to 14 years, a less perfect coördination is not unusual.

There is one more point where age may modify one of our previously stated signs of health. Though it comes under the subject of posture, I shall ask Dr. Klein's indulgence for mentioning it here if only to bring it before you for discussion. One of the criteria of good posture just mentioned is that the abdomen should not extend in front of the anterior line of the chest. I am sure we have all noticed how infrequently this condition is found in healthy runabouts of 2 to 4 years. It is almost the rule for the abdomen to extend considerably in front of the chest line. Is this relative abdominal prominence normal at this age? If so we must modify for this age this criterion of good posture which is true and important for the older ages. In attempting to account for this abdominal prominence, at least two considerations deserve attention. First, as previously mentioned, the abdominal muscles, in common with all the muscles, are not well developed at this age. Secondly, according to Professor R. E. Scammon, the pelvic cavity at birth is relatively much smaller than in the adult. With the growth of the lesser pelvis a portion of the small intestine may be accommodated in the pelvic cavity, thus leaving more space in the abdominal cavity. He also states that at birth the relative weight of the stomach and intestines to the body weight is 1.5 per cent, whereas it is but 0.75 per cent, or one-half of this in the adult. The relative weight of the liver to the body weight at birth is 4 per cent, whereas in the adult it is 2.5 to 3 per cent. It is evident, therefore, that at birth and for the first few years of life the abdomen is expected to contain a relatively greater bulk than is required of it later on in life. Also, there is relatively less

space for this greater bulk. Combine these facts with the fact that the power and tone of the abdominal muscles, at this early age, are not well developed and it would seem most natural for the abdomen to extend forward more prominently than in later years.

CONCLUSION

In conclusion, the signs of health outlined in this paper are not offered as an exact standard based upon scientific experimental investigation. It is impossible to provide such a standard at this time. Not nearly enough scientific work has been done to warrant such an attempt. We have presented the physical signs which clinical experience has recognized for years as being safe indications of good health. We believe they can be used with confidence in picking out children who are in excellent health. It is often most difficult at best to decide correctly about borderline cases. These children should be referred always to physicians who have been particularly trained and who have also the advantage of wide experience with this particular type of work.

Lastly, I wish especially to emphasize that the particular advantage of these clinical signs of health is that they do not aim to describe a single type as the ideal, but rather an ideal group. It is not the mountain peak where there is room for but one child to stand and proclaim, "I and only I am the healthy type"; it is rather the plateau which may be just as high as the mountain peak, but upon which there is room for thousands of healthy children of various ages, types and degrees to take their place and proclaim: "We represent the normal variations of healthy children."

WHAT IS GOOD POSTURE

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POSTURE is good when the disposition of the several parts of the body is that best adapted to its design and use, and when that disposition is conducive to health and happiness.

Posture is good when the body is poised to function with a minimum waste of effort and energy—economically. That is to say, posture is good when the possibility of fatigue, resulting from the expenditure of energy in maintaining that posture, is least.

Fatigue, it has been said, is the most important factor in the inception of disease, in that it may break down the bodily defenses, the barriers against disease. The obvious physiological antidote to fatigue is rest. It affords an opportunity for recuperation.

Fatigue is minimized by a correct alignment of the skeleton, by a nice balancing of the muscles, and by a relationship of organs which aids normal function. Such a combination is spoken of as physiological rest.

This position, where the parts of the skeleton are aligned in accordance with accepted physical laws of statics and mechanics, where the muscles are balanced and in tone, and where the organs are supported adequately, where all parts of the living body may function as a part of a mechanism without any undue strain but according to the fundamental laws of all mechanisms—this position is the “A” or excellent posture we advocate.

The indices of this excellent “A” posture are the same for all individuals, of the thin and long, broad and stocky, or of the intermediate types. The manner of exhibiting these indices may necessarily vary with the given type of body build. This is perhaps more striking in the deviations from the excellent posture. But the criteria of good body posture are fundamentally the same for all types of persons.

The head is up, and the chin is in and back, so that the head is balanced above the shoulders, hips and ankles. The chest is elevated with the breast bone the part of the body farthest forward. The lower abdomen is in and flat and the back curves are within normal limits.

—This “A” posture is good because with it there is no undue strain on any sets of muscles to maintain the position, there is freedom of

excursion for mobile parts, and all organs are supported in the positions designed for their fullest functioning.*

This "A" posture, in addition to promoting good health through the avoidance of physical disorders, may be conducive to happiness through the reflex reactions set up in the bodily structures. These reactions produce a feeling of pleasantness, dignity, self-reliance and efficiency. Thus, emotions based on bodily feelings—following William James's theory—may be conducive to certain corresponding states. For instance, we not only laugh because we are happy but we laugh and are therefore happy; we are not only sad and weep but we weep and are therefore sad. We stand with dignity, poise, self-reliance and efficiency and we feel that way. Thus reflex states significant to mental health may be developed in connection with good bodily posture.

Good posture to be such, within certain limitations, must be easy to acquire. Its rudiments must be simple. The method of instruction in such posture or body carriage must also be uncomplicated and easy to introduce. It must not be expensive, and should be applicable to large groups. Once acquired this body carriage must be easy to maintain.

The "A" posture, to be demonstrated later, we believe fulfils these requirements. That position of the body, as we have tried to show, is one dependent on only two fundamentals: First, the low back must be placed in a correct position. This can be done by retracting the lower abdominal muscles and contracting the glutei or buttock muscles. In this way the pelvis is rotated backward about the hip joint as a pivot, and, since the pelvis and low spine tend to move together in one block, the lumbar spine or low back will at the same time be bent backward. Secondly, the head must be drawn backward with the chin held down and in. This will have the effect of fixing the upper spine and thorax in its correct position. With these two simple fundamentals learned the subject will know the correct body carriage. The rudiments of the "A" posture are therefore simple and only two in number.

The method of instruction has been simplified and standardized in the pamphlets of the Children's Bureau, so that anyone who can teach should, after a little study of those pamphlets, be able to teach correct body mechanics. This method was followed in a public grade school for two years. There the grade teachers, with only ten minutes a day at their disposal for this task, were able to introduce good posture to groups of children, usually about 48 in number.

Good posture is comparatively inexpensive to introduce. It can be

* Because of the short time allotted to this paper, I must refer you for a fuller treatment of this phase of the subject to the pamphlets issued by the Children's Bureau, U. S. Bureau of Labor, Washington, D. C.

taught to large groups by the organization already in the schools. The teacher in most places is required to devote a certain part of the school time to "calisthenics." This period might very well be made to include training in good posture without any particular disruption of the curriculum of instruction. We believe this time might well be taken from routine calisthenics, but this would only be necessary in the early stages. No special expensive apparatus of any sort is necessary for the instruction in good body mechanics.

With the fundamentals acquired, the instruction can be carried on throughout the grade school life of the child and extended gradually to include setting-up exercises, games and sports. If the maintenance of good body mechanics is stressed throughout the advanced form of instruction the subject will form the habit of good body carriage at all times and that posture will lose its early awkward, forced attitude and become natural, easy, graceful and therefore good.

The advanced form of instruction is not of major importance at this time. The various exercises, and so forth, can be taught according to the ability of the subjects and the predilections of the individual teacher. These exercises may therefore be more or less peculiar for each group—a structure, with characteristics bearing the imprints of the teachers but nevertheless always superimposed on the same type of fundamentals. These fundamentals must be the same everywhere and their influence must be present throughout all activities.

To exemplify these fundamentals of good posture, to show graphically how they may be taught and acquired, the Children's Bureau has made a posture film. The film is designed primarily to show first how the lower part and later the upper part of the body can be placed in correct posture. Its purpose is to show how one may teach another or acquire for himself the simplest technic of correcting the body carriage. It graphically depicts the method of eliminating the usually exaggerated low back curve by retracting the lower abdominal muscles and contracting the buttock muscles.

The low back curve must first be flattened by means of these two groups of muscles. Retracting the abdominal muscles alone will not, as a rule, be sufficient to accomplish this. The buttock muscles must also be contracted to complete the swing backward of the pelvis and with the latter the low lumbar spine. To be sure, a constantly flat low back is not the final goal of our efforts. If, however, the subject will aim to achieve a flat lumbar spine he will usually reach a point just short of that and will acquire a low spine exhibiting habitually the normal curves.

After the base of the spine has been fixed, emphasis centers upon

the head. It should be drawn backward with the chin also drawn in. The effect is to eliminate exaggerated curves in the upper spine and to simultaneously raise the chest. The thorax is thus brought to the position from which excursion of the ribs and diaphragm is free and function of the organs housed therein is unhandicapped. The subject stands with good posture.

The film stresses these fundamentals and the technic of acquiring them because they alone are the ground work of the system for acquiring the habit of good body carriage. They are enough to start with. Once they have been learned any groups of exercises can suffice if throughout the doing of them the subjects continually maintain the fundamental, good posture.

The film strives to stimulate the proper attitude toward good posture. It aims by animated diagrammatic and outline skeletal drawings to show just how the fundamentals of good posture are to be acquired and how easy the acquisition may be. It aims, with examples of famous people, to show how thus the elements of beauty and health are satisfied.

Development of Maternal and Neonatal Welfare

Presiding: J. H. MASON KNOX, JR., M.D., *Chief, Bureau of Child Hygiene, Maryland State Department of Health, Baltimore, Maryland*

Recent Contributions of Pathology to the Problem of Neonatal Mortality

FRED L. ADAIR, M.D., *Associate Professor of Obstetrics and Gynecology, University of Minnesota Medical School, Minneapolis, Minnesota*

Reduction of Mortality and Morbidity in Childbirth

J. M. H. ROWLAND, M.D., *Professor of Obstetrics, Dean, School of Medicine, University of Maryland, Baltimore, Maryland*

RECENT CONTRIBUTIONS OF PATHOLOGY TO THE PROBLEM OF NEONATAL MORTALITY

FRED L. ADAIR, M.D.

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Medical School, Minneapolis*

NEONATAL PATHOLOGY does not begin at birth nor yet during birth. In order to have a clear conception of pathology in general it is necessary to have some understanding of antenatal conditions. This is particularly true of the pathology of the new-born.

Dr. Ballentyne¹ quite a number of years ago recognized the tremendous importance of a systematic and comprehensive knowledge of the abnormal conditions associated with germinal, embryonic, and fetal life. He, in following out a scheme of "space for time," described by Hutchinson, suggested a consideration of the hereditary factors as represented in the dual beginnings of life as indicated by ovogenesis and spermatogenesis. We have here a relatively long dual and more or less independent cellular life with cells which are derived from different individuals of opposite sex. On the one hand these cells may be quite normal and yet when subjected to some abnormal environment after fusion lead to the development of a diseased or abnormal individual. On the other hand, one or both of these cells may be abnormal or become so prior to fertilization, with the result that we have a hereditarily diseased or abnormal offspring. The germinal period ends with the anteconceptional stage when the ovum leaves its follicle to pass into the uterine tube. Insemination leads to the intraconceptional period and fertilization begins the postconceptional phase of antenatal life. Thus end the germinal and ovular periods and the phase of embryonic life starts the real development of the organism, which is termed organogenesis.

Abnormal conditions affecting the primary cells may reveal themselves in sterility, in death during the germinal period, in malformations and disease during the embryonic and fetal periods, or if less disastrous they may show themselves in neonatal, postnatal, and later life. In a similar manner environmental conditions may manifest their results almost immediately in sterility, disease, malformation, and death during the germinal, conceptional, embryonic, neonatal, fetal, neonatal, and postnatal periods.

It is thus quite apparent that if we are to understand the causes and conditions surrounding neonatal diseases we must have a thorough comprehension of antenatal life.

The short period of 40 weeks devoted to antenatal life is filled with events occurring in rapid succession leading to marked structural and functional changes such as are not seen in any other period of life, no matter how long.

After the hazards of antenatal life are passed, the process of birth begins, which in fact represents the transition from fetal to neonatal life, and which might properly be called the natal or intranatal period. There is probably no period of similar duration in the physiologic life of man which is accompanied with such serious possibilities to health and life. During the physiologic mechanism of birth, which so frequently becomes pathologic for the offspring, fetal death may occur or injuries may take place which result in almost immediate death during the intranatal or neonatal period. Injuries may be sustained or conditions acquired during the process of birth which result in a later fatality or in the survival of an individual handicapped more or less throughout a life of longer or shorter duration.

After birth the infant is thrust into an environment to which it must make adaptations carrying with them definite dangers which may result in disease with recovery, disability, or death.

All of these risks are incurred by an infant born at term with its fetal structures and functions fully developed, but we have also a large group of infants which are prematurely thrust into the neonatal period without being properly prepared. Some of these are previable and they, of course, have no chance of survival with our present methods of care. The viable offspring have naturally the better chance of survival the further advanced they are in fetal life, other things being equal, when forced to lead an unnatural extrauterine life. One would, of course, expect the death rates to be rather high during these periods of stress, but it would seem that we should be able in some way to reduce the mortality associated with birth and the early weeks of life. It is rather difficult not to consider dead born infants together with neonatal deaths because the margin is so slight between a stillbirth and a neonatal death. Our stillbirths are grouped into the antenatal, intranatal, and postnatal deaths, but if an infant is born with its heart beating the simple fact that it does or does not take one or a few breaths is the criterion as to whether it is a dead birth or a neonatal death. In the one instance it swells the number of newly-born deaths, and in the other it increases the stillbirth rate. It seems more accurate to consider the stillbirth rate in conjunction with the neonatal death rate.

It is rather astounding to realize that the number of dead born infants and neonatal deaths is practically equal to all the infant deaths during the remainder of the first year of life. It is still more embarrassing to learn that practically all of the lessening of the infant death rate has taken place after the first two weeks of life. It is disconcerting to recognize that in spite of our supposed increase of medical knowledge and improvement of medical practice the stillbirth and neonatal death rates have remained practically the same for the past twelve or fifteen years and probably for a much longer period of time.

This is especially discouraging to us in Minneapolis where we have taken such pains to develop our prenatal work and improve our natal care by the increased hospitalization of our maternity patients. Seventy-three per cent of our births during the year 1925 were in the hospitals of the city. In citing statistics it is, of course, important to realize that birth and death reports from hospitals are more complete than from homes. For a comparison of our stillbirths and neonatal deaths with other communities it is well to know that in Minnesota we are required to report as births all fetuses attaining a period of five months gestation or more. This, of course, includes many previable fetuses which really should not be classed as dead born infants or as neonatal deaths. (Figures I, II, and III.)

Inasmuch as we have not thus far been so very successful statistically in reducing these deaths it seems that we must analyze more carefully the causes and work out different or better methods of prevention. It is at this point that the pathologist with his technic of gross and microscopic methods of examination should be able to help in determining the etiology of disease and causes of death of dead born and newly born infants. We have been trying to make a study of both stillborn fetuses and infants dying during the neonatal period by means of pathologic examinations.

Many other workers are active in this field so that we should begin to secure some definite results before the lapse of many years.

Malformations and failures of proper development, while of great interest and immense importance, are hardly within the realm of preventive medicine at the present day. We must learn how, when, and what causes affect the germ cells and the kind of environment which affects the embryo, producing these numerous defects which often have such tragic results. Our ability to successfully prevent these conditions would seem to be much farther in the future than our capacity to understand the causes and apply the remedy for the prevention of certain other conditions which are very prominent in contributing to neonatal mortality.

PROBLEM OF NEONATAL MORTALITY

COMPARISON OF BIRTHS AND NEONATAL DEATHS
IN HOSPITALS AND HOMES

FIGURE I

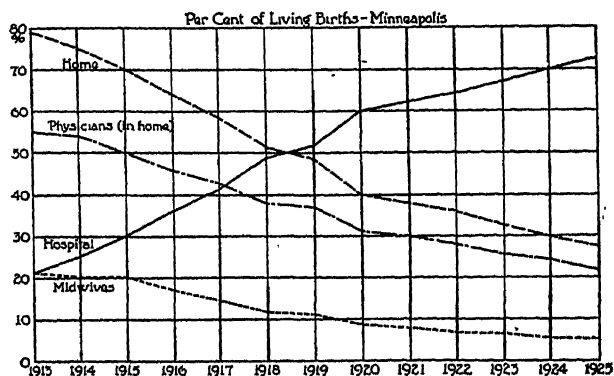


FIGURE II

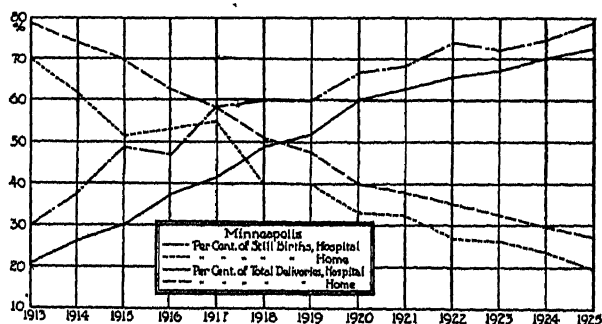
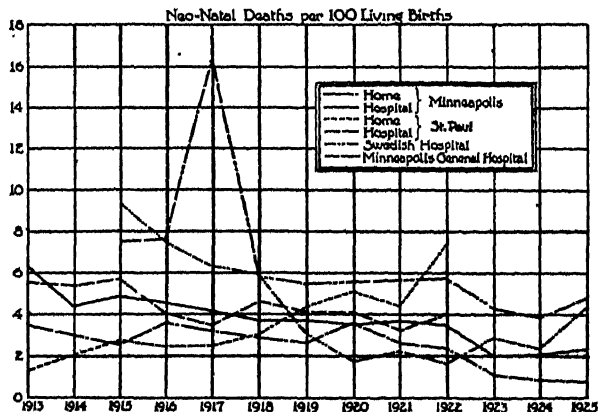


FIGURE III



The immediate and remote effects of birth trauma have long been known and yet the knowledge has been and still is far from being complete, and certainly has never been widely disseminated through the medical mind.

Of the various birth injuries, those which affect the head and more especially the brain and its membranes are among the prominent factors causing death during the neonatal period. In the past many of these injuries have been missed because of improper technic in opening the skull of the newly-born. One must use the special technic of Beneke² or some equally good method for the proper inspection of the cranial contents. Another good reason for our failure to appreciate the seriousness and frequency of such intracranial lesions has been that autopsies on stillborn and newly-born infants have until more recently been relatively infrequent.

The neurologist has long appreciated the remote results of these traumatic lesions, but the pathologist and others have not until quite recently thrown much light on the origin and frequency of these and allied injuries. Little's³ observations antedated nearly ten years the rather meager but important pathologic contributions of Weber⁴ and Hecker. They called attention to the petechial hemorrhages which were found in brain tissues as well as in other tissues of the body. Beneke was one of the first to call attention to the frequency and importance of lacerations of the intracranial membranes and associated hemorrhages. This was made possible by the new technic which he applied in opening the head. He credits Cruveilhier, and later Virchow, with recognizing the tentorial pathology much earlier than he did. Nothing much came of their knowledge of these injuries to the tentorium until Beneke, about fifteen years ago, corrected our information regarding the location, frequency, and character of intracranial hemorrhages and tentorial tears.

It is, of course, well known that intracranial hemorrhages are not all of one type, nor do they all come from lacerations of the falx and tentorium. It is also established that such tears may be followed by only a trivial hemorrhage or by none at all. Other intracranial injuries also occur, but are not necessarily associated with either lacerations or hemorrhage. Ischemia, even leading to necrosis, may occur. Contusion and concussion have both been assumed by Seitz,⁵ and edema is not uncommonly found. This one thing should always be kept in mind, that nothing be done subsequent to birth which might tend to aggravate an intracranial condition which may have been acquired during birth. The infant which exhibits any symptoms or signs indicative of any cerebral affection should be treated with gentleness and not be resuscitated by any rough and ready methods of stimulating respiration.

The mechanical factors entering into the production of intracranial lacerations and hemorrhages are of the greatest importance. The association of such lesions with injuries to the skull bones are so obvious as to need no mention. The mechanical principles of labor with associated head changes are of the very greatest importance because these brain injuries occur not only in pathologic labors and in artificial terminations of labor, but in those where labor progresses rapidly or slowly and ends spontaneously (Figure IV).

That the fetal head resists compression well is definitely established. In all probability the slight diminution in intracranial volume is compensated by the squeezing of blood and fluid into the spinal canal. Beneke, after much study, believed that the arrangement of the fibers of the falx in a longitudinal manner suggested the function of checking a too great extension of the long diameters of the cranium and served to counteract the effects of lateral compression. He believed that lateral compression was the primary mechanical factor in causing tentorial tears. Subsequent observers supported his views. Benthin⁶ found that longitudinal and oblique pressure caused tentorial tears, and both he and Seitz believed that compression of the fully rotated head in an antero-posterior direction when delivering over the perineum was responsible for tentorial tears. Wilke, Seitz, and others ascribe tentorial tears in breech deliveries to pressure of the occipital bone on the cerebellum. Compression of the cerebellum could cause sufficient tension of the tentorium to produce lacerations.

Holland,⁷ in a rather recent series of autopsies on stillborn fetuses, found about half with dural injury. He presents very clearly the consequences of intracranial stress due to head moulding and elevation of the cranial vault as a result of compression of the head. This causes tension of the falx, and at times overstretching with resultant tearing of the falx or tentorium. Greenwood⁸ does not accept these views in their entirety, and as a result of careful measurement made upon casts of the heads of newly-born infants reaches some different conclusions. He shows that the shortened suboccipitobregmatic diameter does not increase the vertical diameter of the head, but lengthens the antero-posterior diameter. In normal vertex presentations these tentorial tears are not caused by raising of the cranial vault. In occiput posterior, brow, and especially in breech presentations, elevation of the vault may be a factor in producing these lacerations.

In some studies of our own with reference to tension of the falx and tentorium we have reached the conclusion that occipital pressure is a very important factor in the production of injury to the falx and tentorium (Figure V). To substantiate this idea we have the fact that



FIGURE IV

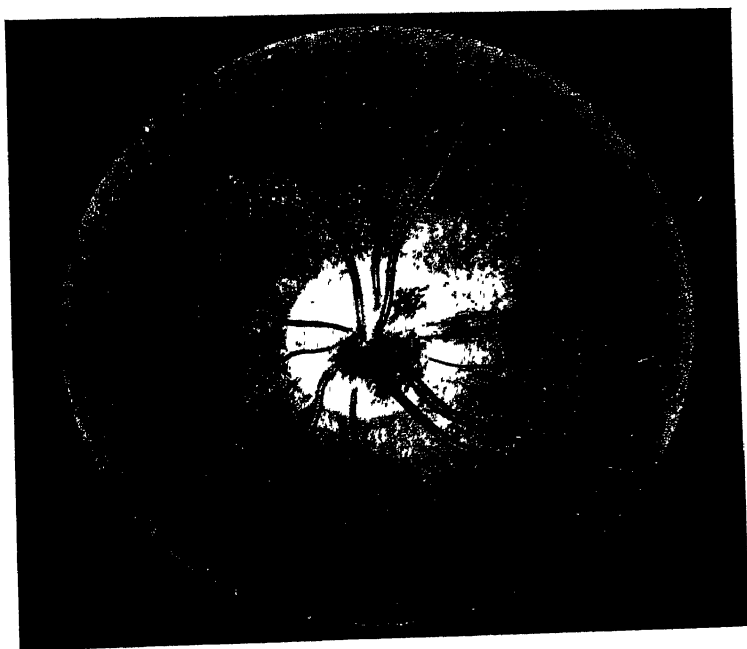


FIGURE VI

not all of the heads in which these injuries are present show head moulding. There is the additional fact that some of the labors are short and not conducive to changes in head contour. There is also the additional argument that these injuries are present after all varieties of cephalic presentations with both spontaneous and artificial deliveries. They are also frequent in breech deliveries and even in infants delivered by Caesarean section. In most of our autopsies we find not only overriding of the margin of the parietal bones, but one or both of these bones usually override the occipital bone. If one further takes the trouble to observe during labor, at the end of the second stage, it is easy to demonstrate the depression of the occipital bone with overriding of the parietals.

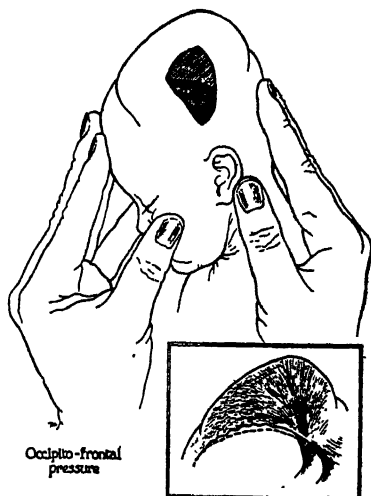


FIGURE V

In order to confirm this impression, heads were taken and the brain substance washed out through a small opening in the parietal bone. Pressure was then applied over the occiput in the different diameters of the head, lying in the sagittal plane, and the effect on the falx and tentorium noted. Oblique pressure was also tried and occipital pressure with body traction was also applied. The effect of all was much the same, with certain minor variations. It resulted in definitely increased tension with what appeared to be the maximum stress near the bifurcation and junction of the falx with the tentorium. No doubt these injuries are produced in different ways, but it seems reasonable to believe that occipital pressure is one of the means.

After all, these dural lacerations should not be considered as the all-important lesions. If there were no bleeding or merely slight bleeding associated with these tears, and usually there is not much hemorrhage, the results would not be so disastrous unless other more grave injuries were present. It seems that we should rather regard these membranous tears and the usually slight associated bleeding as the visible evidence of much more serious damage to the brain substance itself, which is not so easily demonstrated.

This viewpoint is definitely supported by the careful work of Schwartz,⁹ who has made a painstaking gross and microscopic study of

fixed brain tissue of young infants. He found evidence of hemorrhage and degenerative changes in the brain substance in the big majority of autopsies on infants up to 5 months of age. The character and distribution of these lesions point definitely to traumatism during the process of labor. Siegmund¹⁰ and Ylppoe¹¹ accept these findings as in accord with their opinions and feel that the future physical and mental development of term and premature infants depends largely upon the extent and character of the trauma to the brain caused by the mechanism of labor. Schwartz describes two forms of hemorrhage into the brain substance, one as small isolated hemorrhages into the white substance, the other as a complex strand-like arrangement. He also described small areas of anemic necrosis and other degenerative changes. Schwartz has a theory that a sort of suction on the exposed portion of the head is responsible for these brain injuries. This suction effect is produced by the difference between the intra- and extra-uterine pressure, especially upon the portion of the head protruding through the partially or completely dilated cervix. Some studies of the movements of the eyeballs in new-born infants and certain reflex and respiratory disturbances point to the apparent frequency of brain injury in the newly-born. The great difficulty or impossibility of establishing respiration in the new-born where the heart continues to beat for a considerable time after birth may be due in many instances to injury of the brain substance. This might be due to hemorrhages in the pons as suggested by Lundsden.

Retinal and aural hemorrhages also confirm the presence of intracranial lesions, though we have not found evidence of retinal hemorrhage in the new-born or in eyes obtained from autopsies so frequently as some observers (see Figure VI). Sharpe¹² and others¹³ stress the importance of spinal puncture and the finding of blood in the fluid as indicative of the frequency of intracranial hemorrhage. Fragility of the vessels, especially in premature infants (Ylppoe), and alterations of bleeding and coagulation time (Rodda)¹⁴ are doubtless factors contributing to the frequency and extent of the hemorrhages in some cases.

So far as prevention of these brain lesions is concerned, we are in something of a quandary, but perhaps certain principles will serve to guide us in the management of these cases.

In the first place, we should remember that violent labors, even though short, are dangerous to the offspring, and this is doubtless especially true of the second stage of labor. We should, therefore, seek to control by means of anesthesia the force of the uterine contractions and the violence of the expulsive efforts. Long labors, especially those

in which the head is in any other position than that of occiput anterior, are especially hazardous to the offspring and should be handled in a manner to correct the malposition and favor a spontaneous delivery. Breech positions, especially in primiparous women, should if possible, be corrected by external version. It should be borne in mind that the fetal head is already compressed during labor and that any means of artificial delivery tends to rapidly compress the head and is apt to do more harm than good. Usually certain diameters of the head are more markedly compressed than others, this varying somewhat with different positions. In any method of artificial delivery consideration should be given to this fact and if possible further compression of diameters already shortened should be avoided. We must further remember that not only forceps, but also the soft parts and the bony pelvis compress the head, and we should so make application and use traction as to secure the most favorable diameters and the least resistance. Preparatory dilatation and even cutting of the soft parts is often valuable in decreasing the resistance offered to the oncoming head. Lastly, we must remember that artificial methods of delivery are not always responsible for the brain lesions which occur, as many doubtless antedated the use of forceps or the performance of version. Artificial methods of delivery only court disaster unless the proper indications and favorable conditions are present.

Our neonatal autopsies make up about 40 per cent of the entire series of examinations on infants dead born or dying within the first two weeks. Over half of these, not including the previable group, died within the first twenty-four hours of life. Nearly three-fourths of these infants were viable but premature. Over half of these deaths were due to birth trauma. Of the later deaths, less than half of the total neonatal deaths, over one-third occurred among premature infants, and only about 3 per cent could be attributed to birth trauma. A little more than one-quarter of the neonatal deaths occurring on the first day of life were among full term infants, to which deaths birth trauma contributed in a little over one-half. Less than two-thirds of the later day deaths took place among full term infants, and about one-fourth of these appeared to be due to birth trauma.

It is apparent that the big factor in neonatal mortality is birth trauma, which is, in so far as first day deaths are concerned, a repetition of what is found with reference to intrapartum and postpartum stillbirths. We may as well open our eyes to the fact that we as obstetricians are not ordinarily dealing with the phenomena of suffocation when we find evidence of fetal distress. The placental and cord causes which lead to true asphyxia neonatorum are relatively infrequent and are not the usual

factors productive of apnoeic conditions in the newly-born. The autopsy findings associated with suffocation, consisting of widely disseminated petechial hemorrhages, are not so frequently seen. Evidence of brain injury is very frequent in both dead-born and newly-born infants, whether the latter die or survive. Compression of the brain and associated conditions doubtless give signs of fetal distress as indicated by the change in the rate and rhythm of the fetal heart. This may continue and be so severe as to lead to an intrapartum or postpartum stillbirth, or even after resuscitation we may have a neonatal death due to intracranial lesions. These brain injuries also are the indirect cause of many neonatal deaths because of the consequences of aspiration by the infant of amniotic fluid, blood, and vaginal discharges, due to the excitation of premature attempts at respiration.

This leads us to a consideration of pulmonary infections, which are not an infrequent cause of neonatal deaths. That antenatal pneumonic infection can occur is undoubtedly true, but aspiration with subsequent development of a broncho-pneumonia is apparently more frequent. Other pulmonary and pleural conditions contribute to neonatal deaths, such as partial atelectasis and congenital hydrothorax. Infections of other portions of the body are of great importance and contribute to deaths in the neonatal period. Occasional cases of meningitis, doubtless due to extension from infections of the nasopharynx, are seen. Gastro-intestinal infections are not uncommon. Sometimes cases of primary and secondary peritonitis are found. The most common sites of infection are on the exposed surfaces of the body and we frequently see those involving the breast, umbilicus, and skin. Most of these are not serious so far as neonatal life is concerned, unless a bacteremia or cellulitis result. These infections seem to be more commonly the result of a staphylococcic invasion as seen in mastitis and pemphigus cases. The streptococcus is sometimes found in pemphigus neonatorum and we not infrequently have deaths from erysipelas of the newly-born. All of these pyogenic infections are theoretically preventable, but practically their prevention requires a flawless technic, which it is almost impossible to attain because we do not yet understand all of the avenues of infection.

Certain specific infections occur occasionally, and syphilis happens too frequently. Perhaps one of the important advances in the diagnosis has been the utilization of the X-ray as applied to the shafts of the long bones. We have applied this technic to the naked bones obtained from autopsy specimens and Kennedy has obtained some very good and characteristic shadows of syphilitic epiphyses. Syphilis as a factor in the production of deaths among fetuses and newly-born infants is not so

frequent in our autopsies as among series from other communities. Tuberculosis has not been present in our series of autopsies. Hemorrhagic diseases should not be confused with ecchymosis, petechial hemorrhages, or traumatic bleeding, which are frequently found as the result of suffocation, toxemias, infections, and birth injuries. If these conditions occur in infants with hemorrhagic disease the situation naturally becomes much more critical. It may be that in our locality the widespread use of whole blood and the taking of the bleeding and coagulation time has reduced the incidence of death from hemophilia neonatorum.

This suggests the gastrointestinal hemorrhages associated with hemorrhagic disease and leads our attention to a couple of cases of duodenal ulcer associated with melena which were found in our series and described by Kennedy,¹⁵ who feels that he has now been able to conclusively demonstrate diplococci in the ulcer and surrounding tissue, which have to be considered as an etiologic factor.

Toxemia of pregnancy is important in connection with stillbirths and neonatal deaths, both as a direct and an indirect cause. This is one of the important predisposing causes of prematurity for no matter how we handle these cases it is often necessary to induce labor prematurely with the consequent results of birth trauma, infection, and other causes of casualties in the prematurely born. Our main factor of safety here for both mother and offspring is the early detection and management of the case. The mother is not so damaged and the viable child is delivered in a more deliberate manner with less injury, and more mature, than in an otherwise neglected patient requiring emergency measures.

Unfortunately we have still much to learn about the toxemias of pregnancy. Other causes of artificial and deliberate prematurity are frequent and appear to be unavoidable. Our pathologic examinations show us that we must be particularly careful not to produce any birth injuries in these very susceptible infants, and that extraordinary precautions must be taken against unnecessary exposure and infections.

The above group of premature infants is the result of intentional and therapeutic measure and is, with our present knowledge, inevitable. There is a large group which are not therapeutic or deliberately intentional, and which could be avoided by better prenatal care and coöperation on the part of the patient. Many of these are brought on by traumatic causes such as overstrain, overwork, and too much seeking after pleasure in automobile trips, dancing, and so forth. These things may and do excite premature uterine contractions, and cause the rupture of the membranes, with the net result of increased neonatal mortality from prematurity, birth injuries, and infections. There are many neonatal deaths in which, even after autopsy, the cause of the fatality is

obscure and undetermined. Improved technic and advancement of our knowledge of fetal and neonatal pathology will doubtless clear up many of these unfathomed conditions. This naturally leads us to a consideration of the ductless glands and their relationship to these deaths.

The thymus, so far as is known, functions, as a lymphoid organ. Peterson and Miller¹⁶ found thymic hyperplasia in 43 per cent of 120 infants studied for this condition. Evans,¹⁷ in a study of sudden death associated with cyanosis in 12 infants, found a large thymus in 3. Noback¹⁸ in his study of thymic form found that the broad fetal thymus became converted into the normally narrow postnatal thymus. This change is completed at about 2 weeks of age. He believes that with the expansion of the lungs the thymus is compressed and pushed down over the pericardium up into the neck and posteriorly into the mediastinum. His opinion is that the symptoms of stridor and cyanosis result more from this moulding than from the actual size of the gland. Boyd has studied the thymus in our series and has found that the unilobed, bilobed, trilobed, and conglomerate types as described by Coplin,¹⁹ and the form changes as elaborated by Noback. There has been no case in which the so-called thymic symptoms could not be accounted for by birth injuries. Skinner²⁰ found that the most common symptoms of congenital goiter arose from compression of the trachea, and that unless the infant died within the first twenty-four to thirty-six hours the enlargement rapidly disappeared.

Stewart has studied the thyroid gland in our series of cases and feels justified in making the following statements:

"A study of the thyroid glands from a series of approximately three hundred new-born infants revealed a very striking variability not only in the size of the glands, but also in their histological appearance, particularly of the thyroid follicles. The study also has revealed a series of changes which have been interpreted as being suggestive of the occurrence of definite progressive stages in the changing histological structure of the gland. Although this interpretation may be erroneous, nevertheless for descriptive purposes the different histological pictures observed are considered in the apparent order of their progression. In this abstract, glands presenting four distinct and different types of histological structure are described.

"Type I. In a certain percentage of new-born infants the thyroid gland presents well defined follicles of various sizes lined with low cuboidal epithelium. In glands of this type the majority of the follicles contain colloid. Surrounding the follicles is a vascular and delicate stroma of connective tissue. In general the appearance of these glands is quite comparable with that of the normal adult human thyroid. Thyroid glands of this type occurring in the new-born infant are uniformly small, weighing from one to two grams, and were found in the minority of cases. If this type of gland is normal for the new-born infant, there can be no doubt that at birth the thyroid is abnormal in the majority of babies born in Minneapolis.

"Type II. In glands of this type a hyperplasia of the follicular epithelium

has occurred, and to such an extent that the lumina of the follicles are compactly filled with cuboidal cells. This hyperplasia of the follicular epithelium is accompanied by a complete disappearance of the colloid. Thyroid glands showing this type of histological appearance occur more frequently at birth than Type I. In addition the gross weight of the glands of Type II averages about treble that of the thyroids, showing definite colloid containing follicles. In a considerable number of the infants the thyroid presented this appearance.

"Type III. Thyroid glands classified in this group had an average weight definitely greater than that of the first two types described, ranging from six to fifteen grams. The thyroids in this group resemble those of group II in presenting follicles containing no colloid and being filled with epithelial cells. Careful examination reveals, however, that instead of being compactly arranged the epithelial cells are separated by definite intercellular spaces. In addition the cytoplasm of the epithelial cells is definitely less abundant in glands included in group III than in group II. Accompanying the appearance of the intercellular clefts or spaces the cytoplasm of the epithelial cells appears drawn out in delicate processes in such a manner as to suggest the appearance of mesenchymal tissue.

"Type IV. The thyroid glands of this group include quite uniformly the largest glands present in this series of babies, ranging in weight from fifteen to seventy-two grams. Thyroids of this type present rather large follicles containing no colloid. Remnants of follicular epithelium are scattered loosely throughout the follicle with only an occasional cell attached to the periphery of the follicle. The cytoplasm is greatly reduced in amount and presents fine, delicate protoplasmic strands apparently anastomosing frequently with those of adjacent cells. Thyroids showing this type of histological structure are usually considerably hypertrophied and also are rather frequent in occurrence.

"Type IVa. The thyroid glands included in this group probably should be included in group IV, but for convenience of description are considered separately. The glands in this group contained follicles histologically similar to those in group IV and differ only in the presence of extreme congestion of the gland. The congestion in addition to greatly distending the capillaries of the stroma of the gland also greatly distorted the contour of the follicles.

"Summary: The variations in the histological appearance of the thyroid of the new-born infant are so extreme that one not familiar with these variations experiences great difficulty in recognizing the gland."

At a meeting such as this, prevention of disease and death is the fundamental idea. So far as my particular topic is concerned, the reduction of neonatal mortality is the all important object. This means prevention of disease of the fetus, and death of the newly-born. Obviously this can be accomplished only by management before birth, during the process of birth, and immediately after birth. This is the old story of prenatal, intranatal, and postnatal care. The main points of attack are, of course, fetal infections, especially syphilis, the control of pregnancy toxemias, and other conditions requiring the premature termination of pregnancy, and the lessening of the number of premature births due to unintentional but often avoidable causes. The great necessity for care in the protection of the premature infants from injury during birth

and infection subsequent to birth must be realized. It is important to have more careful selection of cases for natal care so that those who need special attention may receive it to the benefit of both mother and infant. In this way the birth injuries of term infants may be reduced. The general level of obstetric knowledge and practice must be raised so that fewer casualties may occur. The conditions surrounding the newly-born infant must be improved so that there is less opportunity for infection and better opportunity for finding abnormal conditions which may be rectified. Only by better and more painstaking care of mother, fetus, and newly-born, from at least the beginning of pregnancy to the end of the neonatal period, can the best results be obtained in the reduction of neonatal mortality.

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REDUCTION OF MORTALITY AND MORBIDITY IN CHILDBIRTH

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STATISTICS show that the mortality among childbearing women generally greatly exceeds that shown in the practice of careful and competent men or that recorded by well supervised clinics. Childbirth is so common a phenomenon and is experienced by so many without mortality or apparent morbidity that the laity are always surprised when they are cautioned concerning the dangers (immediate or remote) of childbirth, and those of a lesser degree of intelligence, or with a lessened sense of responsibility, have been apt to look upon the physician warning them as an alarmist and have paid less attention to his warnings than was consistent with safety. While this condition is passing to some extent among thinking people, it is unfortunately true that the majority of the public do not belong to this class and need to have brought to them in some way the hazards of childbearing in neglected cases and the comparative freedom from danger in cases well cared for.

The great need, and, as I understand it, one of the chief purposes of this meeting, is to discuss methods of bringing to the laity the knowledge which is available for the prevention and relief of the complications of childbearing and the prevention of the mortality and morbidity thereby arising.

How are we to reach the laity? Are we to reach them through the doctor and the visiting nurse? or are we to go directly to the laity themselves?

If we are to take the message to the physician, what message shall we take?—what part of the work belongs to the visiting nurse?—and if we go to the laity, how shall we reach them and what shall we tell them?

Before entering upon therapeutic discussions, one should have clearly in mind what conditions are the causes of the mortality and morbidity of childbirth. Most of these are well known, but a great trio stand out most prominently, causing more than half of the maternal deaths. DeLee states that out of 25,000 maternal deaths each year in the United States, 6,000 die from infection, 5,000 from eclampsia, and 4,000 from hemorrhage. It is as certain as anything can be that the great majority of these deaths can be easily prevented.

In the smaller towns in Maryland, we have been giving to groups of doctors and nurses series of six lectures of an hour each—six lectures to each group. These lectures are given under the auspices of the Bureau of Child Welfare and the Extension Work of the University of Maryland. Interest has seemed to be fairly aroused where the lectures have been given and attendance encouraging, numbering about an average of 25 in the smallest group and 70 in the largest. In these lectures, which were primarily for doctors, we have tried to emphasize the need of having patients report early and frequently to the physician and the need of simple but careful record of each case. We try not to discourage the physician in this regard by asking him to keep too elaborate a record, but show him that a card 5 by 8 inches written on both sides will hold all absolutely necessary data in each case. We try to impress upon him the essential things: record for birth certificate, history previous to marriage, history of previous pregnancies and present pregnancy and the relative value of various facts found. In the previous personal history—the importance of tuberculosis and cardiac trouble, severe scarlet fever, rheumatism, chorea, nephritis; and in obstetrical history—miscarriages, forceps deliveries, toxemias, hemorrhage, stillbirths, infections and Caesarean sections, must be noted and their full significance ascertained. In the obstetrical history, we ask them to obtain not only the facts concerning abortion, forceps deliveries, and so forth, but to ascertain their sequence. A history, for instance, which gives a record of a miscarriage in the first pregnancy followed by one or two normal pregnancies and labors is not so important as one which records a normal pregnancy followed by one or two miscarriages; and again, a first labor terminated by forceps and followed by subsequent spontaneous labor is a very common occurrence, while on the other hand, one or two labors terminating spontaneously followed by forceps deliveries in subsequent labors may have a profound significance. Why was a Caesarean section done?—and so forth. A stillbirth in a forceps delivery in a primiparous woman may have little significance, but a stillbirth in a multiparous woman following the birth of normal, healthy children needs very careful consideration. We particularly urge them to ascertain carefully the cause of stillbirths.

A history is worth nothing if its worth cannot be determined. Its worth can only be determined by an intelligent correlation of the facts ascertained or ascertainable.

Then we insist upon careful physical examination, with special consideration of the abdominal tumor and pelvis, size and shape of the uterus, palpation of foetus—ascertaining attitude, presentation and position, measurements and characteristics of pelvis. How much better

the prospect is for a satisfactory delivery in the case of a woman whose contracted pelvis has been measured and the probability of a spontaneous labor carefully weighed and preparation for operative delivery made beforehand.

Then we insist upon careful advice about exercise, diet, clothing, sexual intercourse, constipation, and so forth, and we urge that the patient receive very careful instruction to report: headache, constipation, oedema, hemorrhage of the slightest degree or pain and to return at regular intervals. We try to show the physicians that five to ten minutes is sufficient for most of the subsequent visits and that the whole matter of records and prenatal supervision takes very much less time than they have supposed.

We then insist upon the instruction of the patient in the matter of preparation for labor, urging, in the matter of supplies, simplicity and economy, but emphasizing the necessity for cleanliness, and in the selection of a delivery room—sunlight, proximity to water and as much isolation as possible; also, the great advisability of coöperating with the county visiting nurse in these preparations.

We, of course, urge the necessity of scrupulous cleanliness during delivery, the use of rubber gloves, the fewest possible vaginal examinations, the inadvisability of attempting to do operative deliveries alone and the necessity for consultation, where available, in all complicated cases.

We urge care in matters of early rupture of the bag of waters; the use of pituitrin; and too early interference in uncomplicated cases (the too early or too vigorous attempts to express the placenta—the most frequent cause of postpartum hemorrhage); and the immediate repair of damaged perineum. Rest and sleep secured by the elimination of worry and the provision of quiet during the puerperium; cleanliness both of the breast and perineum; regular visits by the physician, afternoon, if possible, with temperature and pulse ascertained at each visit; regular nursing of the child; and avoidance of too early return to work are also emphasized in these lectures.

We then discuss the pathology of pregnancy, beginning with abortion and extra-uterine pregnancy, giving important differential points, urging absence of interference in the one and immediate interference in the other.

We insist that continued bleeding of considerable amount over a period of several days during early pregnancy is in all cases satisfactory reason for interference.

We emphasize the ease with which the diagnosis of placenta praevia is made and the necessity for immediate interference, giving the differ-

ential diagnosis between that and premature separation of normally implanted placenta and urging immediate treatment here. In these cases, we impress as forcibly as possible that from first to last the chief duty of the physician is to conserve the blood of the patient, not only for the immediate benefit to the patient, but because a patient who has lost blood is a poor surgical risk and is prone to infection.

In the toxemic group, we try to show that in pernicious vomiting nearly all, if not all, are neurotic in character and that all may be cured if handled firmly; that practically all cases of eclampsia are preventable, and if any patient becomes toxemic in spite of treatment, careful supervision of the patient will discover symptoms of pre-eclampsia in time for the induction of premature labor; that nephritics should not become pregnant, that they are prone to produce premature, puny or dead children and, in the bearing of them, do themselves infinite damage.

In the group of infections which occur both in the abortions and during labor and puerperium, we try to teach that unwarranted interference by curettage in abortions and too frequent vaginal examinations in labor are the chief causes. If doctors and midwives learn to be clean, and avoid interference, the matter of infection will largely be solved, not entirely, of course, as there are cases in which the greatest care has been exercised under ideal conditions, which have later died of infection. Cases of auto-infection cannot be entirely ruled out, and improper handling of herself by the patient is sometimes responsible, but these furnish only a small percentage of all cases.

To the nurse, we can urge careful and tactful supervision of all cases coming under her supervision. The laywoman will frequently give more confidence to the instruction of the nurse than the physician, and certainly where she has had a chance, the social service, prenatal or maternal welfare nurse has justified her employment. But, it is urged with truth, much of this already has been done and the mortality has not been materially reduced.

It is my own opinion that best results are not going to be obtained through the further education of the physicians and the efforts of social service nurses, valuable as this instruction may be, but must come through the efforts to bring the facts directly to the laity, to women's clubs, to church societies, and to political groups of women. Indeed, not to laywomen alone, but to laymen the gospel must be preached that the childbearing woman is the most important member of the community; that the greatest tragedy that can possibly occur is the death of the actual or potential mother of a family, who was, perhaps only a few days, or possibly a few hours before, apparently in good health—and that this need not occur. If the neglect which has been the portion

of the childbearing woman is brought home; if it can be shown to her and she can once be persuaded that the mortality her sisters have suffered and the morbidity which she herself suffers are the result of improper supervision during pregnancy and improper care during childbirth; she will demand decent supervision and care, and when she does, she will get it, because no doctor will long survive in an intelligent community of women aware of their rights who does not furnish the kind of care they demand.

Proper education of the laity in prenatal care and efficient methods of delivery will certainly largely reduce the deaths from infections and will almost entirely prevent deaths from eclampsia, will reduce deaths from nephritis and from placenta praevia, the hardest of all to control. I have not mentioned the cardiac cases. No more brilliant results can be shown than can be obtained by careful prenatal supervision of this group, and no more unfortunate results are shown than those that occur in neglected cases of this group.

The cases mentioned do not cover all which might be considered—cases complicated by acute infectious diseases, surgical complications, unrecognized pelvic diseases and many others. Time does not permit discussion of them—certainly there are none of them in which intelligent appreciation of their relation to pregnancy and the early application of intelligent care could fail to improve the mortality incident to them.

I have not been asked to discuss maternal morbidity or deaths of children, which are almost as important, but what I have said about the prevention of maternal mortality works out just as effectually in the prevention of morbidity and infant mortality as in prevention of maternal mortality.

In conclusion, I wish you to emphasize that we can do much good through our instruction to the doctor and nurse, but the great advance, in my opinion, will come through our approach to the laity and it is my advice that our efforts should be concentrated in that direction.

SUGGESTED PROPAGANDA TO THE LAITY

It ought not to be difficult to bring to lay women everywhere a few very important facts:

1. That childbearing in this stage of our civilization is no longer necessarily an uncomplicated physiological process.
2. That pregnant women should report to the physician as early as the condition is known.
3. That careful supervision at relatively short intervals is necessary to prevent many of the complications of pregnancy and childbirth.

4. That the physician who does not desire to do this for his patient is not considerate of her welfare.
5. That headache, cedema, constipation, hemorrhage of any degree mean trouble if not relieved.
6. That routine examination of urine and routine blood pressure should be a part of the examination at each visit.
7. That careful physical examination including examination of the pregnant uterus and measurement of the pelvis are necessary.
8. That careful preparation for delivery frequently saves trouble in labor.
9. That the doctor who wants no record of his patient's case, who does not require her to visit him regularly and who does not wish to know anything about her until she is in labor is not the doctor who should attend her.

AMERICAN CHILD HEALTH ASSOCIATION

TRANSACTIONS OF THE THIRD ANNUAL MEETING

ATLANTIC CITY, NEW JERSEY
MAY 17-22, 1926

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Community Health Organization

Plan for a City of 100,000; plan for a City of 50,000; plan for a County or District Health Organization.

These plans will include standards of health practice which have been adopted in the light of modern experience.

JOINT SESSION WITH THE SCHOOL NURSING SECTION OF
THE NATIONAL ORGANIZATION FOR PUBLIC HEALTH
NURSING

Presiding: FLORA BURGHEDORF, R.N., *Supervisor, School Nurses, Flint, Michigan*

How to Secure the Cooperation of the Home

The Physician's Way

LESTER J. EVANS, M.D., *Director of Medical Service, Fargo Child Health Demonstration, The Commonwealth Fund Child Health Program, Fargo, North Dakota*

The Nurse's Way

FLORENCE H. M. EMORY, R.N., *Assistant Director, Department of Public Health Nursing, University of Toronto, Toronto, Ontario*

The Teacher's Way

ISABEL P. HAGGERTY, *Teacher, Public Schools, Passaic, New Jersey*

Team Work — The Physician, Nurse, Teacher, and Parents

ELNORA E. THOMSON, R.N., *Director, Nursing Service, Marion County Child Health Demonstration, Commonwealth Fund Child Health Program, Salem, Oregon*

THE PHYSICIAN'S WAY OF SECURING THE PARENTS' COÖPERATION

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THE FAMILY unit, as well as the individual, is now receiving attention in most forms of public educational efforts; so it is very fitting that we should discuss at this joint session ways and means of interesting the family in health. Although we represent a more or less specialized phase of health work and are focusing our thoughts on the school child, yet we have learned from experience that the most permanent results of our efforts come from homes where a real family health consciousness has been aroused.

We have progressed beyond the stage of considering only the detection and correction of defects as making up an adequate school health program. We have also become interested in the positive phase of child health by training the child in the regular observance of health habits and the development of favorable attitudes, and, still further we are now called upon to give to the public fundamental scientific information that they may so regulate their households and living habits to insure better health. In fact, this newer emphasis on the educational aspects of our program is of the utmost importance. Some of our greatest achievements come as a result of this newer endeavor, yet they are the most difficult to evaluate. We know that year after year, though we may correct certain defects, we do not begin to see maximum returns for our efforts until we have combined these newer activities with our older program.

Any health program which involves the teacher, nurse, and physician must show a unity of thought and action if it is to make its greatest appeal. The teacher, in the course of her classroom instruction, must reiterate, of course in a modified manner, to meet her particular needs, the story of the nurse in the home and of the doctor when he talks to the child and his mother at the time of the school health examination. Likewise the nurse and the physician must know in a general way the teacher's problem in the classroom. The public will more readily accept our program if we are all telling the same story.

The teacher has her own particular contact with the child and through him reaches the home. The nurse may visit the home directly and

arouse in the mother that understanding and friendliness which mean so much. The physician, though lacking in any such constant contact, does have an excellent opportunity at the time of the school health examination, to do his share in securing the parents' support.

The experiences related in this paper are based on three years' work in Fargo, North Dakota, a city of 26,000 population, situated in the midst of a prosperous agricultural section. Here, as part of the Commonwealth Fund Child Health Program, a child health demonstration has been organized for special work with children of all age groups.

The community as a whole is progressive, with up-to-date modern municipal improvements and conveniences. The population is fairly homogeneous. This has made possible the organization of a uniform health program, without need for special adaptation for different racial groups and economic levels.

All health activities in the schools are part of the general health program and are carried on directly under the supervision and with the assistance of the school authorities. The school nursing service is a part of a generalized nursing program designed to be available to the entire population. The demonstration physician serves the schools. His full time is devoted to preventive health work for the school children and for infants and preschool children in health centers. He is not engaged in private practice.

It is well to mention briefly the activities of the school physician as we now understand them, since it is clear he has a much broader function than merely to examine and point out remediable defects. He must coöperate with and lend assistance to other departments of the school directly interested in the health of the child, for example, the departments of health education and physical education. His contact with the physicians and general public as represented by parent-teacher groups and other organized groups, must be such that he may advise with them in their efforts to promote child health. His work in the school must be organized so as to be of the greatest assistance to the health department. His relation to the schools, to the children and parents, to the medical and dental profession, and to the community, must be such that it will be of greatest possible value in elevating the standards of individual and community child health.

It is very important that whenever possible the nurse and teacher be present at the time of the health examination in order that they may learn directly the findings of the physician and also that the physician may receive from them information which will enable him to form correct judgments and opinions. The teacher usually has many questions to ask and problems to discuss concerning the pupils in her room,

answers to which will not be found on the usual health examination record. These will be questions and problems concerning the habits of the child, his mentality, behavior, and so forth. Such contact with the physician gives her a better understanding of just what he is doing and enables her to better carry on in the classroom an intelligent all around health education program dealing with the individual child.

The nurse also profits by this close contact with the examination. It is true that in the examination of school children she has certain duties to perform, such as the testing of vision and hearing, which may interfere with her constant presence, but in most cases it is possible for her to so arrange her work that during the actual examination she may be present for at least part of the time. The general exchange of comments which will naturally result cannot help but be beneficial to all. This shows the general set-up of his work and illustrates what may be termed the physician's indirect contact with the home, that is, through the nurse and the teacher, and organized groups of interested persons. The physician's direct contact is made through the child as he is examined and the mother if she should be present.

Early in our work we realized the very great educational advantages of the school health examination and the opportunity it offered to reach the mother directly; so we are inviting all mothers to attend when their children are examined. Form letters over the school principal's signature are sent to the homes notifying the parents of the date of examination and asking that they be present to learn directly the findings and to discuss with the physicians, teacher and nurse, any special questions or problems they might have regarding their child's health. The mothers also take this as an opportunity to visit the classroom and very often have other problems to discuss with the teacher and nurse.

It has been very interesting to note that mothers from all types of homes have responded and have seemed to be equally interested in the health program. During the first year we had about 15 per cent of the mothers present, and 70 per cent have been present both this year and last. This increase in attendance represents greater effort on our part; but more than this, it represents an increased interest of the mothers in the health of their children and a better understanding of the purposes of the whole health program. From 80 to 90 per cent of the mothers present last year have returned this year. These figures are for elementary schools. Mothers of junior high pupils do not respond so well, largely because the children are inclined to discourage the presence of their mothers.

In addition to the letter already cited, the teachers call the mothers by telephone a day or two before examination and the nurses while

making their home visits invite the mothers. If a mother is hesitant about coming, they may be able to give some specific reason why she should come. Some of the schools have conducted contests awarding prizes to the room having the largest percentage of mothers present. We believe this invitation should come primarily from the teacher and not from the physician as it impresses the mother that the health work is a part of the regular school program.

It is needless to say that the examining room must be as pleasant as conditions will permit. The mother must have a seat near the physician where she can converse with him easily and where she can see the existing defects. It is astounding how frequently very evident and serious defects have been entirely overlooked by the mother. If the child's vision and hearing are tested at the time of examinations, the mother should observe this procedure. Visual defects have frequently gone uncorrected for two years when mothers were not present and in many instances were not corrected until the mother finally came to the examination and had them demonstrated. One mother when informed that her child did not see as well as he should, said she did not see how this was possible as he read so much at home. She stood alongside of him when his eyes were tested and noticed that she too could read only the top lines of the chart. She sent word to the school the next morning that both she and her son had consulted an oculist after the examination and were to be fitted with glasses.

With the mothers attending the examinations, the physician is given that opportunity which he needs for discussing with them personally the health problems of their children. This gives him direct contact with the home, other than through the children. The mother's attitude toward his work is determined largely by what she sees and hears while her child is examined.

It should be the determination of the physician to send each child and mother away from the examination feeling they have been directly helped by it. The entire procedure should leave a favorable impression both with the child and with the mother. This will depend largely upon the physician's own attitude and viewpoint of the school health problem. He, himself, must realize the tremendous educational opportunities linked up with the school health examination. He will influence even the youngest child by the manner in which he conducts his work. The physician's responsibility is indeed great. The impression left in the mind of the mother or the child will influence not only the manner in which the next examination is received and the kind of welcome which awaits the nurse when she makes her next home call, but will determine to a large extent whether the child will get the care and attention it needs.

It is evident in the last analysis that most of the difficulties encountered with mothers are founded largely on misunderstanding. If we are able to clear the mother's mind of any misconceptions which she may harbor, we will have gone far towards securing her coöperation.

I have already mentioned the desirable procedure in demonstrating to the mother obvious visual defects. All eye defects, however, will not be determined by the mere reading of the Schnellen chart. Some are made evident by existing signs and symptoms as blepharitis, styes, blurring of the vision and a history of headaches. The mother is a valuable adjunct in furnishing an accurate history and often without her we may have to guess at existing conditions. It is possible also for the physician to suggest to her the proper procedures to follow for obtaining correction of an eye defect, where otherwise she may be misled by some of the popular non-scientific practices.

In forming a correct opinion regarding the condition of the throat, an accurate history is indispensable. We want to know more than just the physical appearances of the tonsils or the nasopharyngeal mucosa. A history of previous rheumatism, chorea, or heart disease will modify the opinion regarding a throat which to all appearances is apparently normal. Likewise a history of repeated colds, sinus disease, earache, or in other words evidence of repeated upper respiratory infections, will also alter the opinion regarding suggested treatment for the nose and throat. The physician's work is made more accurate and therefore more appealing.

A discussion with the mother regarding simple colds enables the physician to discuss very briefly with her their prevention. It may be found that her child is not getting the fresh air or outdoor play and sunshine that he should have or is sleeping in poorly ventilated rooms. We may go through the whole list of defects and in turn show how the mother's intimate knowledge of her child is of value to the physician. What will please a mother more than to know that the physician has taken her into his confidence and discussed these matters with her? The increased percentage of correction of defects is evidence that this confidence has not been misplaced. The mother will naturally act more quickly on a direct personal suggestion than one which comes to her through the mail or through another person. The amount of time saved the nurse in follow-up calls more than compensates for any extra time which may be required of the physician.

It has been our practice to have the children strip to the waistline for examination before the physician. This gives an opportunity to see the kind and amount of clothing the child is wearing. We also

observe the shoes. Mothers are greatly impressed to learn that a physician can tell them what kind of shoes their children should wear.

The physician may discuss with the mother the health habits of her child. Children who have received the advantages of a modern health education program in the schools, know what they should eat and know that their mothers should provide this food for them. Very often when asked what he eats, the child will say, "I eat everything that is good for me, but will not touch pancakes," or some item of that sort. Unconsciously, the mother recognizes the fact that she has not been doing her part. Mothers in discussing foods with the school physician will make mention, before the child, of certain things which he likes and dislikes, and she unconsciously demonstrates to the physician that her practices in habit training have not been good. The way is then clear to give a few pointers on habit training.

Outside activities, such as music and dancing lessons, come in for their share of discussion in connection with sleep and rest. If the child has been found underweight in the school weighing and measuring, the physician often needs to interpret the significance of this in connection with the individual needs of the child.

The whole question of nutrition has been an important subject to discuss with mothers. It is of interest to point out factors which make possible good nutrition, such as the interrelationship between food, sleep, rest, outside play, fresh air, sunshine, and so forth. There are many other points which mothers often wish to discuss, but these given above, serve to illustrate the general type of discussion which takes place.

When a child is in need of medical attention the parents must be made to understand that the responsibility for determining what kind of medical care is necessary and the actual correction of the defect must be left to the physician of their own choice. We do not want them to feel that the school is attempting to dictate what the family physician must do. In spite of much that has been said to the contrary regarding the loyalty of the public toward the medical profession, I have found it true, with us at least, that the majority of mothers do have confidence in their physicians and will do as they advise. Some parents resent the pointing out of defects which their physician had not noticed, feeling it is a thrust at him. The school physician must be careful not to say or do anything which will interfere in the relationship of the family and their medical adviser. It is possible in many instances to reestablish the mother's confidence in her physician when for some reason or other she has begun to waver. After all, the organized medical profession is beginning to recognize its responsibility in the field of health and is preparing itself to render such service.

The physician, to secure the coöperation of parents, must render service of value to the community and to the individual. He must have a good knowledge of public health practices and their best method of application, understanding thoroughly the social as well as the medical phases of his work. His contact with the individual and community must be such that they will receive the greatest benefit.

THE NURSE'S WAY OF SECURING THE PARENTS' COÖPERATION IN SCHOOL HEALTH WORK

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IT IS generally conceded that the public health nurse has come into being so that the individuals of the community may have further opportunity to learn and practice the principles of healthful living which have been made possible through the discoveries of medical science. Experience has shown that two of the most productive fields for imparting such knowledge are the school and the home. Not only that, in the actual accomplishment of her task, the nurse has come to realize that to a marked degree her success in the school has been conditioned by the extent to which she has secured sympathetic and intelligent coöperation in the home. That cooperation may be gained in several ways: first through contact with the parent in the school and the community, second through contact with the child in school, third through contact with the teacher in school, and fourth through home visits. The first three we shall discuss briefly, elaborating on the fourth—the possibility of securing the good-will and action of the parent through personal contact in the home.

1. *Through contact with the parent*

a. In school: The contact of the nurse with the parent in school may be individual or in groups. The former is accomplished in connection with the complete physical examination, the dental survey, the mothercraft class and miscellaneous consultations. In a well organized school health service a complete physical examination is made of each child at least twice during elementary school life. The first one, done as soon as possible after admission to school, affords an excellent means of becoming acquainted with the mother. She is invited to attend the examination when the school medical officer speaks to her of defects which exist in the child. Following that the nurse, who is also present, may have an informal talk with the mother reëmphazizing the points stressed by the doctor and establishing generally a friendly relationship. A couple of months in which to follow the advice given is allowed to elapse before a home visit is made. Again, in some school systems, a method has

been adopted whereby mothers of junior children are invited to be present at the dental survey. They hear the talk on oral hygiene given by the dentist and are informed of existing dental defects. This is another opportunity for the nurse to make friendly contact with the mother. A third opportunity is afforded at closing exercises arranged in connection with the older girls' mothercraft classes. The nurse and teacher invite the mothers to be present when the children give demonstrations of procedures in infant care learned during the classes, and are awarded their certificates. Many nurses have made appointments with mothers to come individually to the health service room during school hours to discuss matters relating to the health of their children. Home nursing classes too have been organized where group instruction has been given to the mothers of the neighborhood. This affords a very real opportunity for intimate contact with the parents of school children.

b. In community organizations: The many community organizations which exist for child betterment afford the nurse still another opportunity through presenting health work to such groups. A better understanding of her function results, which cannot but assist in establishing more securely the work she represents.

2. Through contact with the child in school

Nurses experienced in school health work know that the attitude of the child toward the nurse and toward health work helps or hinders accomplishment in the home. The nurse knows too that the attitude of the child toward her and her work is often influenced by her attitude toward the child. Children know those who are genuinely interested in them and will usually respond to sincerity and kindness.

3. Through contact with the teacher in school

The attitude and example of the teacher toward the physical and mental health of her children may influence favorably or unfavorably, coöperation between the nurse and the home. This may be shown through the teacher's expressing to the parent her interest in the health of the child or through her efforts in securing the correction of defects, or in an endeavor to protect the members of her class against contagion. An ideal relationship is shown in a note written recently by a parent to a teacher in one of the Toronto schools:

"Dear Miss Austin: Will you get in touch with our nurse what visit me and asks her if she could call to see me to-day. I would like to see her very much. I have been very sick for about three weeks myself and she hasen been in for quite a while. Its the nurse from your school call on me so by-by dear from Mrs. Collins."

4. *Through home visits*

Tracing the development of school health work and the relation of the nurse thereto, we find that one of the chief reasons for her appointment was to make possible follow-up work in the home. Her relationship to the school and home is unique since she is the only worker functioning in the school who has ready access to the homes of the community. In recent years increasing emphasis has been placed on the value of the home visit. There would seem to be two factors which have contributed to our present point of view. Participation of the grade teacher in school health work has relieved the nurse somewhat so that although still performing important duties within the school walls, in future it should be possible for her to spend more time in the home. Then too, a clearer realization of the family as the unit in health work has accentuated the value of and necessity for contact in the home.

In a consideration of the value of home visits, in gaining the parents' coöperation we must be cognizant of the fact that the health of the child is materially influenced by the home environment. Since social factors are so important, how can we be fair in our dealings with the school child if we are ignorant of the environment in which he lives during the greater portion of the 24 hours. In his recent book, *The Child at School*,* Sir Leslie Mackenzie refers to the findings of a survey made in 1907 by the Scottish Education Department. A study was made of the health of the children of 73 schools. It was found that the children of the one-room house were at every age from 5 to 14 lowest in height and weight. The children of two-room houses came next, and the children of three-room houses next, and the children of houses of four rooms and upwards stood highest. Sir Leslie states further that such results confirm conclusions already indicated by the general death rate, the infant death rate, the tuberculosis death rate and the death rate of children from 1 to 5 years. There is no doubt then that the health and efficiency of the child at school are largely dependent on home conditions. How can health teaching in the classroom be effective if home conditions are such as to make the practice of that teaching impossible? The public health nurse then in her home visiting, in gaining the coöperation of the parent, helps to create conditions which are favorable to healthful living on the part of the child. The need for home visiting was exemplified in my own experience two years ago when undertaking practice teaching in a school in Cambridge, Massachusetts. Although marked results were achieved through class

* *The Child at School*. Sir Leslie Mackenzie, Medical Member of the Scottish Board of Health. Faber and Gwyer, London, 1926. 2½ shillings.

instruction alone, more thorough and effective work could have been done had more home visits been made.

To secure the coöperation of the parent the nurse makes various types of visits. Some are remedial in nature, that is, to secure the correction of defects, to give advice or instruction in case of illness and to demonstrate treatments ordered by the school doctor. At the request of the principal or teacher a home may be visited where an outstanding social condition exists. In each case the visit may have educational value. Others are purely educational in nature, made with the sole purpose of helping the mother to so modify the home environment as to make possible the carrying out of health instruction given at school.

Having discussed briefly the value of home visits and the types which may be made let us consider some of the characteristics of the effective home visit, that is, some of the essentials of the visit if coöperation is to be obtained. The first point I would mention is that each visit must be purposeful. The nurse should have a clear picture of the reason for the visit and of what she hopes to accomplish. Helpful information may be obtained from the teacher, the principal or from the child's health record card. Particularly would I stress the contribution of the teacher in this respect. Because of her daily contact with the child, information may have been obtained which will be invaluable to the nurse in dealing with the parent. Then too the attitude of the nurse toward the parent and the home is vital. If she is to be successful a friendly relationship must be established. The best public health nurse has a longing to be helpful to all classes of the community irrespective of the homes from which they come. Her one maxim is "service to all." The ability to see another's point of view is implied here together with a buoyancy of spirit which will lead the parent to really want health for her child. Not only must the visit be purposeful and helpful, in presenting the need the nurse must be forceful. The word forceful does not imply compulsion. The days have long since passed when health workers adopt that method, except in extreme cases. I mean rather that the nurse should be sufficiently convincing to enable her to persuade the parent to take action. If the nurse is to be forceful or convincing in her presentation of the health need of the child two things are necessary—personality and training. With the first she gains access to the home and through the second accomplishes the end in view. Adequate training includes a thorough knowledge of the principles underlying the need and in addition to that an ability to impart that knowledge. The time is fast passing when results can be accomplished through personality alone, valuable as it may be. The average citizen of to-day is sufficiently informed to require

a logical presentation of health problems and their possible solution. That is a legitimate demand of one who is supposedly a specialist in the public health field. The good nurse is persistent in spite of apparent failure. Her visits may be purposeful, her attitude helpful and her presentation of the need forceful, and in spite of it all failure is possible unless she possess the quality of persistency. A public health nurse told me recently of an instance in which for two years she had been endeavoring to persuade a parent to have a certain defect in her child corrected. At last action had been obtained. Opinions differ as to the time the nurse is justified in spending in making repeated visits to one home. The fact remains, however, that when persistent, coöperation has been obtained which was entirely withheld during many visits.

Let me pause here to state that should the nurse making school follow-up visits undertake a generalized program, in many instances a favorable relationship will already have been established through former contacts with the family. Should her service include bedside care, the attitude of the home is likely to be favorable because of tangible service rendered previously. There may be disadvantages in a generalized program but let this be said: When an entrance to the home is gained through the school child the nurse is at least free to deal with the health needs of every member of the family. In many cases the coöperation of the parent in regard to the child of school age is already determined because of confidence established through previous contact.

We have discussed briefly some methods which may be employed by the nurse in securing the coöperation of the parent of the school child. From experience we know that they have been adopted with varying degrees of success. As for the future, I believe that Dr. Suzzalo, President of the University of Washington, interpreted the attitude of the public health nursing group when he said, "There are two ways of measuring perfection, first how much better it could be, second how much worse it could be. The first makes for discontent and the second content. We need enough content to appreciate what we have and enough discontent to keep us growing."

May we conclude then that the effective school health program is dependent upon the enlightened and understanding coöperation of the parent and the child, as well as the various workers in the school health service. That coöperation is necessary to the continuance of present school health work and to adequate support for new activities in the days to come.

HOW TO SECURE THE COÖPERATION OF THE HOME

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AFTER the classroom teacher becomes acquainted with her children, really acquainted with them, she knows a good deal about their parents. The children want her to know them, they want her to know about their brothers and their sisters and they tell a good deal about their homes in their childlike way, without the teacher soliciting the information.

With the same technic of method that is used in handling other subject matter so that it will function in the life of the child, the teacher, in handling health education, proceeds to utilize what the child brings to her; she directs the development of each child in her classroom; utilizes the group forces and values within the class, and through these secures the natural relationship between mother, child, teacher, nurse and doctor.

In linking the school and home in coöperative guidance of the children's health, the teacher finds that coöperation of the parents can be quite easily secured and used either in the classroom or in the home, through outstanding channels of resources that are presented in every classroom situation.

These channels of coöperative resources are, first the biographical glimpses of the children's homes and backgrounds, and second the activities in the classroom which carry over and function in the home. In addition to these two the nurses' activities in the school and in the field contribute to the coöperation which the teacher in the classroom receives from the homes.

BIOGRAPHICAL GLIMPSE OF CHILDREN

The teacher does not know the children until she knows something of the environment and circumstances that have lead up to making them what they are. Through a questionnaire the children tell their nationality, whether or not they speak English at home, whether their parents are living, whether they work, and at what? This throws a reflection on the individual child, and the teacher more sympathetically regards the child, "not as he is but in the light of what he may become."

In a program that provided but very little time for health education,

it is interesting to see the possible correlations and activities that manifested themselves throughout the school day.

The area of activity with which I am most familiar is a fifth grade in the Passaic public schools. In this grade practically all nations were represented, forming one large family determined to follow the "Rules of the Health Game" in addition to having all physical defects corrected.

The scales and tape measure and weight chart formed a new and interesting triad in the classroom. The children knew their weight, how much they should weigh for their height and age, and how much they should gain to be up to weight. Every child weighed himself, the children took one another's height. Each child put his individual record on the classroom weight and height chart, so with such a starting point as interest in weight and height every activity in the classroom lent itself to correlation with health education.

These activities automatically carried over a message of health into the homes and unconsciously secured coöperation from the parents.

ACTIVITIES IN THE CLASSROOM THAT CARRIED OVER INTO THE HOME

Health Club: Every morning at the meeting of the Health Club class inspection took place. The children were given credit for definite points such as, clean skin, hair, teeth and hands. The children became interested in the requisites of the club. They naturally coöperated with the group, and it was not long before they talked things over with their parents. Then things began to change, cleanliness being one of the watchwords the children tried to score high in the club. They worked with one another to do the things that were stated in the rules. With a great deal of enthusiasm, every morning the children looked forward to the three-minute speeches by the members of the class, which they suggested would make the club more interesting. The speeches did add interest and the children enjoyed them. One morning a girl would report on "The way my mother cooks oatmeal," another girl told the number of prunes in a pound, told how to cook them and how many members of the family they would serve. The children exchanged recipes and ideas and took them home. Not at all, but at many of our health club meetings when the children gave their talks a parent or two were present. On many occasions the children felt that what they had to contribute was entirely too good to be given without the nurse or principal hearing it, so they too were frequent visitors to the class.

An Italian mother came to the classroom one day to tell the children how Italians prepared spaghetti, and the next day another mother came whose husband keeps a large fish store. She insisted on having the

children go to the store to see the different kinds of fish. Her boy was happy to see his parents interested in his class and to see the children put down in their notebooks the names of fish in his father's store which had been caught in the ocean, and the names of those caught in lakes and rivers.

One morning a little fellow came up to the desk and said, "I have a surprise for the Health Club." I asked him to tell me the surprise before giving it to the club. He said that he would give the children an exercise that he made up from the first chore of our Health Club—"I washed my hands, arms, face, neck and ears to-day." He said that he had practiced it on his little sisters and it took six counts. Telling the children to stand, he said the words of the first health chore and with the motions that one goes through when washing hands, arms, face, neck and ears, he said: "In six counts, ready, begin!" The children rubbed vigorously and appreciated the originality of the exercise. The procedure led to a discussion as to whether or not one should wash his hands before his face, and if so should the water be changed.

At the Health Club we discussed the Rules of the Health Game; that some rules were harder to follow than others, was the opinion of many of the children and with these we worked and planned means to make them easier to follow. "A full bath more than once a week," was one of the rules that necessitated much shifting of method. Children's statements showed that home conditions complicated things at times. They were very honest about the situations at home. They would say there was no bathtub, and sometimes that it was necessary to go to the cellar for the washtub, or that the bathroom was not heated for the regular baths except on Saturday night. Sometimes the whole family was sitting around in the only available room. But the children met the situations, they discussed the matter with their parents, told them that "A full bath more than once a week" was one of the Rules of the Game, and that they wanted to play the game without breaking the rules. In most cases the mothers seemed reasonable with the children and helped them to adjust things.

Through the entire day's program health education permeated every lesson, not as health education apart from the other subjects, but as a strong undercurrent directing and swaying the main stream of thought and leading the children into desirable health attitudes and knowledge which they in turn initiated in their homes.

With the regular prescribed course of study these were some of the possible correlations, and the activities that reached into the children's homes.

Singing and Music Appreciation: Breathing exercises were joys to

the children, not labor. A two-minute rest before singing also was healthful as well as pleasurable. Parents were invited by the children to visit the class at any time and frequently the parents came to hear the songs the children sang. Many of the songs carried messages of health.

Arithmetic: The problems seemed more real when they were related to things that were vital in the life of the child. Some problems involved calculation of weight and gain. We had such problems as: "Oranges cost 60 cents per dozen. There are 6 members in our family, each member has one-half orange for breakfast every morning. What is the cost of the oranges that our family uses for one week?" Children calculated the difference between their weight and the weights of their brothers and sisters. For home assignments the children would find out how much goods, for instance, their mother would use to make an individual towel for each child, or how much a lunch would cost that we had planned in the classroom. Monthly gain was calculated for the report cards and weight charts. Sometimes such a problem as "Michael goes to bed at nine o'clock, sleeps with his windows open until seven o'clock. What part of a day does Michael sleep so that his body will become stronger?" The planning of these problems at home naturally catch and hold the interest of the parents.

Language: Language correlations were possible all through the day but in the particular language periods we had such topics as "What makes a boy or girl grow?" or "What keeps a boy or girl from growing?" "Why am I drinking milk instead of coffee or tea?"

Parents were always happy to get messages from their children and especially so when the children showed enthusiasm in them. On Saint Valentine's Day instead of the usual messages of love the children originated verses and printed them with pride in the valentines which they sent to their parents. One particularly interesting one ran thus:

If you love me help me grow
Give me milk and added weight I'll show.

Other examples of verses were shown on the individual weight booklets. On one made from a tomato seed envelope was written:

Oh tomato red and ripe
I shall eat you up tonight
You are so red and fine
And so rich in vitamine.

Mothers cherish such simple work done by their children and even if they do not understand the words they enjoy the earnestness and activity of the children and catch their enthusiasm. It is not very long before the family knows that "Milk is the master builder," as the children had

learned in school that a pint a day should be the minimum amount. Vegetables and fresh fruits and their effects on the body soon become quite a natural topic of discussion in the home. Fathers and mothers become interested in the children's interests and before long they too are playing the game of health. It does not matter what they know, but what they are willing to learn.

Letters were sent to the parents by the children telling them the importance of having teeth 100 per cent perfect. A post office was provided in the classroom for the answers to these letters; those not in English were translated by a child who understood the language. Each child wanted an answer to his letter, the answer giving permission to have his teeth put in good condition.

We had a newspaper called the "Daily Health News." An editor was selected by the children, and all the children in the class served on the editorial staff. Contributions were received from the parents and given very careful consideration. The children tried their ability at writing poems, jokes and short stories for their paper. The responsibility of correcting manuscripts fell on the editorial staff. The names of pupils who had gained in weight were put in the paper, also those who had teeth 100 per cent perfect, those who were Schick tested, and those who had diseased tonsils removed. One graphic feature showed a boy, "Before and After" selling morning newspapers, and the importance of long hours of rest.

Parents reacted to the oral language work of the classroom. The children practiced at home a three-minute talk on "The value of sleep"; "The importance of having teeth 100 per cent perfect"; "It pays you to keep your clothes and body clean." Two of the children were invited by other teachers to speak before their classes. These little speakers, earnest and interested, told the smaller and often the larger children the importance of good teeth, good looking teeth. (At this time the school was having a drive for teeth 100 per cent perfect.) With a long piece of mirror in his hand and a companion with sparkling eyes and teeth delightfully clean, one boy after his talk to the children would have the children go forward and if their teeth were clean, they had the privilege of glancing in the mirror. After these talks the dental clinic was frequented by the children of the lower grades.

Health Play: A play was planned by the children to show the importance of keeping the Rules of the Health Game. The children talked the play over and discussed with their parents the kinds of costumes that they would make. Some made costumes representing the new vegetables which they had learned to eat, others wore costumes representing the Rules of the Game. The parents helped to fill colored cloth

carrots, cut paper tomatoes, and helped with the necessary trimmings for the play.

The children wrote invitations to the parents and friends. One day the Rotary Club invited them to present their play at one of their noon lunches. All the parents with the exception of three came to see the play.

After the play which was given in the kindergarten of the school the children invited the parents to the classroom, showed them the weight charts and their graphs, showed them their weights on the honor roll, explained with lighted faces that they had made that honor roll of parchment; and that they had worked out on the sand table the project "New Jersey's Contribution to the Health of the Country." The parents too were interested and pleased to see the vegetables which the children had planted in the window boxes.

Geography: The project "New Jersey's Contribution to the Health of the Nation" was worked out on the sand table under the divisions of the Rules of the Game. The sand table had such displays as bathtubs manufactured in New Jersey, soap, and of course plenty of pure water; tooth paste and brushes; happy looking people going to work and to school; and means of transportation. Dairy products, safety regulations, well furnished homes were shown, many of these having been inspired by the parents and perfected with their help.

From the empty seed envelopes that the fathers and mothers gave the children they made weight booklets. From the cover of a booklet on milk the cows were furnished for the New Jersey pasture. Those children who were up-to-weight were in the pasture while those not up to weight were outside the pasture. In connection with this project the children cleansed pieces of sheep skin from which they made parchment. Some one suggested that those having teeth 100 per cent perfect should write their names on the parchment as the Greeks of old wrote. It was not very long before all the children's names were on the honor roll. The children carded and dyed the wool. One grandmother came to the class and showed the old fashioned way of spinning.

Health education was correlated with art, spelling and history. The parents shared in the activities of the classroom, they enjoyed the outcome of the class program and felt part of it. They were proud when their children were up to weight, had all physical defects corrected and showed improvement in their school work as well as in their manner of living.

THE SCHOOL NURSE AS BOND BETWEEN SCHOOL AND HOME

The biographical glimpse of the children, the activities in the classroom that reached into the home were all important and vital, but parallel in importance to the classroom teacher in securing coöperation were the activities of the nurse in the field. The health activities were fostered and inspired by her in coöperation with the doctors and dentists. All worked together, but the nurse handled cases with which the classroom teacher would have difficulty; she constantly followed up cases, not once, but until the children and the parents no longer needed her guidance. With no thought of trouble, she took groups of children to the dental clinic and to the hospital. Through her the parents often made their first trip to the school; they all knew her from her visits to their homes; the children regarded her as their most intimate friend; and through the nurse the bond between the classroom and home was made stronger.

THE PARENT, THE TEACHER, THE PUBLIC HEALTH NURSE AND THE PHYSICIAN IN THE SCHOOL HEALTH PROGRAM

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THIS morning we have thrilled to hear of the activity of the medical, educational and public health nursing groups in the field of health education for the school child, and we have been able to visualize the possibilities for our children in an adequate school health program. Mrs. Struthers has given us a vivid picture of contagion among school children before any school health work was begun. These contrasting pictures help us to know that much has already been accomplished.

Last night we heard of the program which the National Congress of Parents and Teachers is sponsoring for preschool health examinations which are to be held this summer. This movement by the parents of the children is most encouraging, for it has sometimes seemed difficult for the health worker to reach the parent group with the new information we are giving the children relative to health, its protection and conservation. It is of this contact with the parent and the parent's participation in the health program of which I wish specially to speak. It is more difficult to reach the parent than it is to reach the child because we have no direct avenue of approach; hence we have frequently tried to reach the parent through the child. It is true that the surest way to reach the parent is through his interest in his child, and our interest in that same child. But for the most part it has not been through this interest that we have tried to reach him; it has rather been through teaching the child health facts and then expecting him to teach his parent, which is not a normal process and is therefore seldom effective. One needs only to refer to personal experience in this regard to appreciate the futility of such a method. Furthermore, is it not unsound from the standpoint of family relationships? Are there not other ways in which the health information we wish the child to have, and which we hope we are presenting in such a way as to help him form health habits, can be given to the parents? It does not seem necessary to wait until

we have a new generation of parents before we make a more direct approach to them. The new movement for adult education would seem to be admirably adapted to our purpose of giving parents health information. We surely could reach a certain number this way concurrently with their children.

At the beginning of each year would it not be possible to send the parent, with the child's report card, a letter giving some of our newer ideas about health and its attainment? This might perhaps be the statement by the educators of this country of the general objective of education in which health is given its rightful place as the part of the whole in the development of the child.

In addition we might arrange for short informal talks on health which would interest program committees of local Parent-Teacher Associations, and which could become a part of their regular program. It is surely true that the normal parent is more interested in his child than anyone else possibly could be, hence we are challenged to get our facts before the parents so that they will share our enthusiasm in giving these facts to their children.

We should use the best methods known to modern pedagogy. There are of course many prejudices relative to ways of attaining and keeping health; the relation of the health movement to the healing art is close and that art through the ages has had something of the occult in the minds of vast numbers of people. This has held back the whole movement for preventive medicine and is doubtless the basis for many ideas concerning our program. But "people who do not think sometimes rearrange their prejudices," so we might attempt to reach all groups with our information in a way which will make it appeal through logic to the thinkers; to the prejudiced with a knowledge of the prejudice which may make for a rearrangement of it.

We all know we must reach as many parents as possible, for the parent groups are the most important groups of all. We can count on our mutual interest in their children as the connecting link between us. If the children of this generation are to be the well children we want them to be, we must all work together toward that end—parents, physicians, teachers, nurses—for as Hans Gross says, "Only the foolish know everything, the wise man appreciates how many must coöperate to do the simplest thing."

JOINT SESSION WITH THE CHILD WELFARE SECTION OF
THE NATIONAL ORGANIZATION FOR PUBLIC HEALTH
NURSING

Presiding: PHYLLIS M. DACEY, R.N., *Superintendent,
Visiting Nurses' Association, Kansas City, Missouri*

The Normal Preschool Child

**How Public Health Nursing May Contribute to the
Normal Development of the Child**

WINIFRED RAND, R.N., *Merrill-Palmer School, Detroit,
Michigan*

HOW PUBLIC HEALTH NURSING MAY CONTRIBUTE TO THE NORMAL DEVELOPMENT OF THE CHILD

WINIFRED RAND, R.N.

Merrill-Palmer School, Detroit, Michigan

IF ONE WERE preparing a catechism on public health nursing and the public health nurse, one might conceivably have such questions as these in it:

Question: What is a public health nurse?

Answer: An educator.

Question: Whom is she educating?

Answer: The parents.

And behold! we have the term "parent education"—a term which is appearing fairly often to-day in the vocabulary of all those who are concerned with the welfare of children—educators, physicians, social workers, public health workers, and parents themselves.

Yet this term "parent education" is a new term not so old as the public health nurse. We like this new term; we are beginning to use it fairly often; we are talking of programs for parent education and quite rightly so. When did it first come into being?

A comparatively few years ago we began to be very much concerned about the way the child "acted." Children were not just physical beings. They were behaving beings (of course they always had been, but collectively we had not done much talking about the fact) and sometimes their behaving seemed bad, unbelievably bad and not to be understood. Public health nurses often found, when working with preschool children that their behavior actually stood in the way of physical health. The horse who, led to the watering trough, refuses to drink, has nothing on the child who tucks quantities of string beans or spinach into his cheeks but refuses to swallow; and a whipping, that measure so often tried, solves the problem of further refusals, at least, for neither horse nor child. We turned our attention to this, from our point of view, often strangely behaving child and lo, the parent was beside the child and the fault was the parent.

All of us who have worked in conferences or clinics have been very

familiar with the large and buxom mother holding what looked like a cherub 2 year old on her slidy, sloping lap, whose reply to the doctor when he gave her some directions about his care was, "But, doctor, he won't let me." We are also familiar, I am sorry to say, with the answer made by doctor or nurse with its implication of a pitched battle, "Well, who is bigger, you or your child?" It was all too easy when we became concerned with the behaving child in addition to the growing child to pin the blame for his behavior upon the parent. Past experience had taught us that in other things the parent was at fault and in this, too, we often found the same source of the difficulty. The parent was at the bottom of the trouble, because the parent did not know how to guide, rather than to force, the child in the way he should go. There was no doubt about it, parents needed to be educated in this respect, and when we realized the need for this particular type of education, the term "parent education" was born.

Let us look back to the beginnings of public health nursing, especially as it relates to the child, and in fact, it did not really become public health nursing until it did consider the child's well-being. We became concerned about the number of babies who were dying. Why, I wonder, had we let them die for so long unnoticed? We turned our attention to the matter and saw a bad milk supply, we knew the value of a safe milk supply, we thought for a little time that this bad state of affairs was due to the milk supply. We opened milk stations, and then we discovered that parents were beside their dying babies, and lo, the parents were at fault. Poor parents, we have accused them of being to blame for a great deal! But ignorance was to a great extent the cause of the high infant death rate and knowledge of how to care for babies had to take the place of ignorance if that rate were to be conquered. It was when the visiting or district nurse of those early days had begun to teach, to become in truth, a parent educator, that she began to be called a public health nurse. The long used and well loved name of nurse could not have been given up at that time, but it had for so long been connected in the minds of the people with nursing the sick that perhaps it has befogged the issue and hindered the public in getting a true conception of the educational aspect of public health nursing since the idea of health teaching is not conveyed in that term. But whatever she may be called, health teacher or public health nurse, what has she been doing all these years, and how successful has her work been? Has she been a good educator, especially of parents?

Day by day throughout this land and in other lands she has been going in increasing numbers into homes, homes up steep flights of stairs in the tenement houses of crowded city streets, homes in the shanties on

the outskirts of some of our big cities, homes on the quiet streets of the small towns, and homes, lonely and isolated in the wide country districts, or almost inaccessible in the mountains. Day by day she has been teaching lessons, first in the prevention of disease and then later in the building up of health. Her pupils have been mothers, usually, and her goal has been health for the children. Her pupils often had no textbooks but from the beginning they had laboratory material, as the babies might justly be called. How often indeed, has a first born said in later life and truly said, "My mother practiced on me." We all know how sadly that laboratory material has been wasted and abused, in times past, and alas! still is to some extent, in spite of the fact that this teacher-nurse has gone among her pupils and has taught them and demonstrated to them that their laboratory material can be guarded and tended in such a way that it may grow hardy and strong and not waste and die. But not all pupils get A's and B's; there are some who fail and so there have been pupil parents who have failed, some of them who have even belonged to the class of those who "play hooky" from school not because they do not care, but because they do not realize the value of learning. Superstition and long established custom were firmly entrenched and could not be ousted in the twinkling of an eye. To substitute the daily bath and clean clothes every day for goose oil and red flannel applied in the fall, and removed in the summer, may take years, and several children. Did not the nurse in *Romeo and Juliet* tell Juliet that her mother nursed her for four years? Is it any wonder then that we have had a hard time to persuade some of our Italian mothers to wean their babies even at a year?

And yet, in spite of the discouragement of failures there has been the encouragement of success for the teacher-nurse. Often it has been hard earned success since it has meant eternal vigilance on her part, unending patience, extreme ingenuity, a storehouse of wisdom, undaunted courage, and a flexible technic for her widely differing pupils made possible by a sympathetic understanding of each one. Like Robber Brown, the father of Gentle Alice in "*Bab Ballads*," she has had, many times to "watch her opportunity and seize it (the pupil) unaware." Time and again, the right thing said at the right time has made the lesson a success. How do we know these lessons have been a success? One measuring rod which we may use is the mortality rate, maternal and infant, contrasting the time and place where lessons are taught with the time and place where they have not been taught.

Last year the maternal death rate for Detroit was 6.9. The maternal death rate of the prenatal clinic cases who received clinic care and instruction from public health nurses was 3.7 and the clinic cases did

not represent the most promising sort of material. The infant mortality rate under one month for the city was 43.7, the infant mortality rate under one month for the babies whose mothers had attended the clinic was 26.9.

In 1906, the infant death rate in New York City, for example, was 154. In 1908, to quote from Dr. Baker,* "The Bureau of Child Hygiene in New York City was organized and an intensive program for the education of mothers was begun." In 1925, the infant death rate in New York City was 64, a reduction of 58 per cent. The average infant death rate for the years 1906 to 1915 was 119, as compared with an average rate of 79 for the years 1916 to 1925, equivalent to a reduction in the decade of 34 per cent. The provision of a safer milk supply for babies had been brought about in the earlier decade and therefore we are probably justified in claiming that the chief factor in this reduction of 34 per cent was the education of the mothers, and in that education the public health nurse played an important part. Figures comparable to these are found in other cities where the reduction in infant mortality followed close upon the institution of some sort of infant or child hygiene program which called for the services of a public health nurse.

It is a matter beyond argument that lives have been saved by the right kind of health teaching. Saving lives, of course, is not the only thing we want to do, as the term health teaching implies. Health achieved is a harder thing to measure but the contrast between children who have been under continuous health supervision during their preschool life and whose mothers have been good pupils, and those who have not, tells the story so plainly that "He who runs may read." Not that we claim all the results for the public health nurse. Far from it. Clinics, better pediatrics, better obstetrics, newer knowledge in preventive medicine and nutrition are other factors which have brought about better practice in child care, but the public health nurse has been the messenger going into homes carrying her lesson day after day to the door of the woman who badly needed it. The nurse's schoolroom has more often been the kitchen than the lecture hall, for she has been a teacher of the individual rather than a teacher of the group, but the lessons have been taught. She has been indeed a pioneer in this matter of parent education and, like so many pioneers, she started out on her great adventure unprepared and unequipped for that which she wanted to do. A graduate from a hospital, where for three years within its institutional walls she had been devoting her time to learning how to nurse the sick, not back to health, but to the beginning of convalescence (for how many of the patients

* Child Hygiene. S. Josephine Baker, M.D. Harper and Brothers, New York City. 534 pages. Price, \$5.00.

stay in a hospital until they are well?) she started out to teach parents about health and how to attain it in homes. Poor thing! Sometimes she hardly knew what health was. But "nothing venture, nothing have," and in the years that have followed, much has been done to right this state of affairs.

Schools of public health nursing have been established where graduate nurses have the opportunity to supplement their hospital training with the equipment necessary for their great adventure in teaching health. Many training schools, in one way or another, are preparing some of their pupil nurses to go into this particular branch of nursing, some are even sending them as undergraduates to schools of public health nursing, considering it a legitimate part of their training, and to-day in the education of the nurse there is an emphasis on health that was not there fifteen years ago. The health of the nurse herself is also beginning to receive consideration as an important factor in health teaching.

A few years ago when, quite logically and chronologically, we became concerned with the welfare of the preschool child as well as the baby, we again had it brought home to us that our public health nurse was not equipped with all the knowledge that she should have as a health teacher. How much could she teach a mother about the all important subject of the nourishment of her child? Very little, because she had not been taught much about normal nutrition. Feeding a family, and a diet kitchen in a hospital were a long way apart. Diet and Disease was more apt to be the lesson learned by the pupil nurse than Food and Its Relation to Health, and also to the family pocketbook. The nutritionist, being so well grounded to-day in health standards for children, has entered the public health field as one of its welcome workers. She has been helping the public health nurse. The public health nurse as a parent teacher must be better equipped in the training schools with the fundamentals of nutrition, or she cannot carry on a well rounded program in parent education, for she is the one primarily to go into homes to carry the lessons to mothers.

A pioneer in parent education, the public health nurse has taught the physical care of babies and children and we are justified in saying that she has been doing it well, although the work is not complete. Suppose, however, that we stopped with physical well-being as our goal—where would we be? If we had continued with what was our conscious and acknowledged goal in those early days, living babies instead of dead ones, we should have stopped with baby hygiene work and never have begun our preschool work. If we had continued with what has been our second goal, physical well-being, and had not concerned ourselves with mental and social well-being, we should never even have reached our

goal; for physical health is hardly completely possible without mental health, and even suppose that it were, it would certainly not be desirable. Healthy children and bad act-ers would be a deplorable situation as would be its opposite, the children "good as gold" but ill nourished and physically handicapped. And by children "good as gold" I do not mean the repressed and unresisting little child who never shows any sign of healthy and vigorous rebellion to stupid behavior on the part of his parent. So, fortunately, our goal changes and we see to-day that that for which we should strive is a child physically and mentally well, adjusted to well balanced living.

Can the public health nurse, therefore, continue to concern herself in her campaign of parent education simply with physical well-being? My faith in the public health nurse is too great to believe that. If she is still the pioneer with a vision which she was twenty-five years ago (and why should we think that she has grown soft with the years), she sees a great task ahead of her, that of teaching the mother some of the fundamental principles in child guidance which will help the child to grow in mental and social health as well as in physical health, unhampered with the handicaps of a warped personality which make for delinquency. But, as in those early days, she woke to the fact that she did not know health and how to teach it, and as within the last few years she has realized that she has much to learn in regard to nutrition, so to-day, if she sees her whole task she cannot shut her eyes to the fact that she is not equipped to do it all. She must cry out from the house-top and in the market place and say, "Teach me something about the whole child, about the development of his personality, that I may no longer go among the mothers who are my pupils and my friends giving them absolutely no help in their great problem of helping their children to form the right habits for efficient, healthful living." For that is what she has been doing, giving almost no help, sometimes doing harm because she did not realize the importance of the early years in character development, nor know how to advise mothers about ways of avoiding the snags and pitfalls of behavior—threats, bribes, scoldings, rough usage, spankings, naggings, unfulfilled promises, untruths (especially on the part of the mothers in regard to the facts of life), fears, tantrums, bad food habits, bad toilet habits, contrariness, nervous habits, lying, stealing, in fact, the beginnings of all kinds of bad behavior on the part of the child. The nurse did not see in this behavior a matter of cause and effect, and at times with the best intentions in the world gave the wrong advice and made a bad matter worse. She has, with most of the world, thought that the one thing to do with spectacular behavior was to stop it immediately and by force. Getting at the cause in order to prevent its happen-

ing again has not occurred to her. She has not known the importance of getting at the cause of behavior nor how to get at it even if she did realize its importance. She has, therefore, sometimes advised treatment of behavior which in the light of its cause has been actually brutal. A child screaming night after night when put to bed may possibly be terror stricken at the thought of bears under the bed, a thought given to him perhaps by an adult. Should that child be shut in a room and left to cry it out? Yet that is advice that may be given by one who is not sensitive to causes and who, therefore, decides that there is nothing wrong with the child. There may be nothing wrong on the surface, but how much wrong in the mind and how cruel to let it stay wrong? The nurse who advises a mother to give her baby his fingers to suck should be as unthinkable as the nurse who would advise a pacifier, but it is not so. And what of the nurse who has failed to educate a mother to see that the fantastic story of her 4-year-old about a great big lion in the yard is not a wicked lie told with intent to deceive, but rather a delightful tale told at an age when the actuality of physical matter and reality of imaginary matter are so closely interwoven that the difference is hardly distinguishable.

The opportunities of the nurse are legion and she can strike while the iron is hot for she actually hears a mother threaten to call the policeman, or to leave the child at the clinic; she sees a mother slap a child who does not leave his absorbing play instantly to do her bidding; she hears a mother continuously nag; and she has the golden opportunity of pointing out to the mother that perhaps the tantrums at the clinic may be due to fear or a desire to get what he wants by a method which has proved successful before. She has the opportunity of suggesting that it might be wiser to give a few moments' warning rather than to ruthlessly break in upon a child's happy absorption, and that perhaps her nagging had something to do with her child's constant negativism. She has so many opportunities for advice of the right sort! How many lost opportunities, if she is not able to give it! The nurse has not been the only one making these mistakes. Advice in regard to the treatment of a child has been the most popular and universally given sort of advice. The neighbor, the old maid, the young and the old, in street cars, in railway stations, in any gathering where there has been a child, there has been somebody ready with advice. How familiar are the words, "Well, if he were my child." Plentiful the advice but what has been the knowledge on which the advice has been based? Too often sadly lacking. An innate wisdom and common sense have in many instances saved the day for a parent and child. But not all parents were innately wise and sensible and for the great body of parents there was no knowl-

edge available to help them prepare for the guidance of their children. Now the time is come when knowledge has been acquired as to the importance from a mental and social viewpoint of the early years. We now have certain fundamental principles which should guide us in our dealings with children. The conception, for example, of the right relation between parent and child is a different one to-day from what it has been. We know the dangers of an over-development of the emotional relation, and the mother who waits hand and foot on her child, preventing, thwarting his right desire for learning, and so mis-shaping his personality, is no longer looked upon as a beautiful example of self-sacrificing motherhood but is looked upon as a poor, mistaken, uneducated even though loving parent. The world has been waiting for this knowledge; it considers it so all-important for parents that it calls the giving of it to parents, "parent education," as if it were the whole program rather than the latest development. Does not parent education imply teaching parents the care of the whole child, physical, mental and moral? Without doubt, yes. Has not the public health nurse been to a certain extent a parent educator? Without doubt, yes. Has the time not come for her to become to a further extent a parent educator? Is not the answer again, "without doubt, yes"?

The public health nurse throughout the years of her work has built up a great parent clientele, parents who have learned from her and who know that they have learned from her and who are therefore grateful and in a receptive frame of mind. Throughout these same years, when the public health nurse has been teaching, a new body of knowledge has been acquired which has changed and developed the old technic of child training and the parents have a crying need for this knowledge. How is it to get from those who have acquired the knowledge to those who have need of it? Why not by way of the public health nurse? She is the agent in the field, she has receptive pupils; she is, in fact, in a strategic position to spread the gospel—but she hasn't the gospel, and she must have it.

That is the reason why she must cry "Teach me." A gospel, remember, is a simple tale with a message. She cannot be asked to master the intricacies of science. She is not called upon to become a psychologist, but she can learn the simple lessons which will mean, as Dr. Gesell says, the "radical reduction of the gross faults of child care." And she must learn these lessons and teach them if she is to go on as a pioneer in the field of public health. Our goal changes, we have to run to keep up with ourselves. A strategic position is a dangerous position. If by any chance we fail to take advantage of the next opportunity to go forward, we fall back. The nurse cannot afford to do that. Can she fall back

after years of going forward in the front ranks of the public health movement? be satisfied with her past laurels? Impossible!

Let us, therefore, turn back to our educational institutions. high schools, colleges, training schools, and, with one voice cry: "We must be taught that we may teach about the whole child," for otherwise we public health nurses will not be able to take the next step forward in public health and not to take it would be intolerable.

JOINT SESSION WITH THE CHILD HYGIENE SECTION
AMERICAN PUBLIC HEALTH ASSOCIATION

Presiding: C. E. TURNER, *Associate Professor, Department
of Biology and Public Health, Massachusetts Institute of
Technology, Cambridge, Massachusetts*

**Interrelationship Between Health Education
and the School Health Service**

Getting Results in the Elementary School

JULIET BELL, *Director County Health Education Demonstration,
Western State Normal School, Kalamazoo, Michigan*

Observations in Secondary Schools

EDNA BAILEY, PH.D., *Supervisor of the Teaching of Science,
University High School, Berkeley, California*

Unifying the School Health Program

DANIEL J. KELLY, *Superintendent of Schools, Binghamton,
New York*

GETTING RESULTS IN THE ELEMENTARY SCHOOL

JULIET BELL

*Director County Health Education Demonstration, Western State Normal School,
Kalamazoo, Michigan*

IT WAS with very great daring that I agreed to prepare a paper on the subject of getting results in the elementary school in health work. I am quite conscious of the fact that the child is the product of hereditary and environmental influences and of his own particular psychological and physiological reactions to these influences, that we cannot determine how much improvement is due to each of these factors alone.

But this paper is not concerned with taking a result and tracing back to its final cause or causes for the purpose of measuring some specific factor involved. In school health work our aims are to improve mode of action or habit of action, to improve the mode of thought or habit of thought or attitude or ideals with respect to health, and to give a store of health knowledge that will function as habits and attitudes. If this be true, then every health activity from the health examination by the doctor, nurse, or teacher, the prevention of the spread of contagion, to the eating of fruits and vegetables and the inspection of nails, all should be directed toward those three aims. With this concentration of purpose and with consistent correlation between activity and outcome, it is reasonable to expect to raise the health level of the individuals and of the group concerned.

It is the purpose of this paper to consider some results of these influences but there will be no attempt to analyze those factors as distinct and separate causes. Possibly indications of progress is a better term than so exact a term as measures or results. We are all conscious of advancement and progress in the raising of the health level of children through our various health activities. We have faith that we are bringing about progressive changes in the lives of individuals. And the foundation of that faith is threefold: the opinion of teachers, a few objective indications of progress and a few other evidences of progress, which now escape the measuring rod. It is very much like traveling by train. We are sure that we are being carried along; in fact the telegraph posts flashing by indicate that we are moving but they do not

measure exactly the rate of speed or mileage. Associated with that travel are immeasurable experiences, the value of which we doubt not at all just because they are not susceptible to measurement. This paper then is concerned with two kinds of evidences of progress in health work in elementary schools—with some results that are susceptible to objective measurement, and with certain other evidences of progress which are not susceptible to a measuring rod such as the reaction or interest of parents and teachers and the changed attitudes of children. Suggestions as to how some favorable results have been achieved will be a part of the concern of this paper. Even the process of looking for results is a method of getting results. It reveals not only health progress or improvement but also health deficiency or health needs and this disclosure of weaknesses is in itself a first step in getting better results. Since the initial step is included, there is a temptation to include more of the "how" of result getting.

In his paper on the "Contribution of Biology to Teaching," Dr. Watson states that biologically the child attends to but one thing at a time. In terms of physical defect then the child with adenoids, tonsils, dental defects, and so forth, is slowed down in his mental and physical growth because his attention, biologically speaking, has been withdrawn from this building process and diverted to the immediate need of attending to the defect. Since this is true the health examination of children is one of the essential phases of health activities in school and it is the concern of doctor, nurse and teacher. The value of these examinations in improving the health status of children is in proportion to the use made of them for building habits and creating attitudes. In the schools where I have had more or less the supervision of health education for the past two years we have used an adaptation of the Blue Ribbon procedure that was worked out by the schools of Mansfield, Ohio. We have neither a nurse nor a doctor and whatever results we have obtained depended upon the interest and ability of the teacher to stimulate interest, enthusiasm, and coöperation among the children and parents.

There are two ways of inaugurating health examinations. One is to examine all children except those the parents do not want examined. The other is to put the examination on an invitation or permission basis. With the first plan, more children may be examined, with whatever advantage lies in numbers, and with inertia and indifference capitalized. The latter plan requires more intensive and organized effort, and may or may not result in having a smaller proportion of the children examined the first year.

We adapted the Mansfield plan to fit our needs. Letters were sent to parents explaining briefly the importance of the examination and

inviting them to meet for discussion. In these discussions it was explained what the examination would include; we asked permission to strip the child to the waist; we urged the parents to be present at the examination; the time and place of the examination were made clear; the names of doctors who were volunteering their services were announced, and so forth. The points brought up for discussion by the parents were the costliness of correcting the defects, the child's fear of exposure, and the probability that the children would not be interested. Explanations were made or a way out suggested. A second letter including all points explained and discussed was then sent to all parents. And like the Mansfield plan, our plan sought to tie up this health activity in which no child is naturally interested with some inner urge or vital interest of the child. The procedure of the examination was explained to the children in terms of the automobile and the importance of the examination in terms of keeping fit. In this we capitalized interest and action—we believe we are building habit of thought and action. And again following the Mansfield plan, an honor roll was made of all children who succeeded in getting permission for the examination. On the day of the examination those children examined wore badges made of colored paper. And by afternoon those to be examined grew in numbers. Before the examinations were made the children's interest was stimulated for correcting defects. It was explained to the children that a few would be found to be without defects and they would be known as "One Hundred Per Centers." In the minds of the children this was made a mark of distinction and it was made clear that those who corrected their defects could through their own achievement qualify for membership in this group. Care was taken to create a desire for examinations each year to find the One Hundred Per Centers annually.

In the eight one-room schools out of 156 children 89 were examined with a total of 129 defects. Only two were found to be without defects. We now have 12 One Hundred Per Centers with 23 defects corrected in all children examined, and 39 defects in process of correction. This means 17 per cent already corrected and 31 per cent in process of correction. Still others are planning to have tonsils and adenoids corrected when school ends for the summer. These examinations were made in December, and the follow-up has been stimulated entirely by teachers, because we have no county nurse. In the graded school out of 183 children, 167 had permission for the examination. There were 3 One Hundred Per Centers. At present we have several who through correction will soon be in that group. Out of 393 total defects found there have been 32 corrections with 13 corrections in process of com-

pletion. That means that 8 per cent of defects have been corrected and 3.3 per cent are in process of correction. This has been done since the examinations in March. Here again we have neither nurse nor doctor. In both cases the examinations were made through the coöperation of the County Anti-Tuberculosis Association. The project in Mansfield with its complete personnel for follow-up had even better results. This is the first year that this kind of approach has been used in this locality. And the difference in results with us is in a way a measure of interest of teachers and parents in the two schools. It is the opinion of the teachers that another year will find perceptibly better results.

We feel that our experience in spite of lack of personnel for a close follow-up warrants faith in this excellent plan for getting results in health examination. The mother of two children, one in the kindergarten and the other in the fifth grade, says she is in a dilemma because she cannot afford all of the correction for both of the children and she feels that the need of the older one is the more urgent. But she does not know what to do about it because they are equally insistent that they become One Hundred Per Centers. Even in the kindergarten it is an honor to correct defects. One boy in the seventh grade finds correction of vision and of dental defects of sufficient value to him to warrant his paying for it from money he has made raising and selling calves. There was no pressure brought to bear on him, simply the building of an attitude.

So that the record of these examinations will not grow dusty in some one's file and so that the teacher will have her attention focused on this when school opens in the fall, she records all defects and all corrections on a summary sheet provided and this sheet follows the group of children as they are promoted to the next teacher. It gives at a glance the health findings of the children in the room. It is a constant reminder to the teacher of definite problems that need to be stressed in her health teaching during the year. It helps to individualize her teaching.

So far we have considered health examination as a finder of health needs and as a teaching procedure, whether in the hands of the doctor, nurse or teacher, in fact all must have the educational slant for the purpose of improving the health status of the children and of building permanent values in attitudes. But can these examinations be used as a measure of the success or lack of success of health work in a group? To quote Miss Maud Brown of the Fargo Demonstration: "The only measuring rod that I know of which takes cognizance of brighter eyes, pinker cheeks, more pep, is the general health rating (sometimes called nutrition rating) given at each annual examination by the school physician. I definitely expect a percentage of increase of children rated

good and excellent in the final working up of our statistics." This she considers a justifiable measure of results of the health teaching and other health factors.

The weighing and measuring of children has a threefold value in health activities. It is used for diagnostic purposes, for making health teaching a dynamic functioning procedure and as a measuring rod of results.

To quote Professor Turner's report of his carefully checked experiment in Malden: "Health and growth records of individual children give strong evidence of health improvement through habit improvement." The public schools of Oak Park, Illinois, consider the height-weight ratio as an index of health and as such, I judge, consider it an evidence of health progress. Since the mode of living, health, accidents, illnesses, physiological conditions, physical environment, and heredity affect the weight and growth of children we are warranted in taking it as a means of reflecting results of health activities. All but one of these factors are subject to change. Then as we improve any one or all of those factors we tend to decrease the number of underweight children and to increase normal or average weight children.

In our work we have used Miss Brown's red, white and blue classification. With us the blue represents the children of normal weight or over, the red those slightly underweight and the white those 10 per cent or more underweight. This is a rearrangement of the original color scheme because we wish to follow the children's interest in color. With us white represents the undesirable condition because that color is least interesting to children. We have added one more strip to represent those children who have gained each month. This gives an opportunity for every child, whether or not he or she belongs to the very much underweight group, to be represented on the upward or progressive curve. Each child knows to which group he belongs and he ties up or correlates with his weight classification and with his losses and gains his health habits, his defects, his colds and his other illnesses. For instance one child who lost three pounds said, "No wonder I lost, for I had a bad cold. But I am going to bed earlier than I have been doing and see if I can't get it back."

Here are two groups of children comparable in number, in environment and in condition. A group from eight one-room schools that have been doing health work for two years started last September with 42 very much underweight children, and by March they had only 9, having lost 33 or 79 per cent of them into the higher classification. The "B" group, a rural graded school of 183, that has very recently started health work, began in September with 39 children 10 per cent or more

underweight and in March had 28, having lost 11 or 28 per cent of them. In September the "A" group had 39 normal weight children and in March 88, an addition of 49 or an increase of 225 per cent. The "B" group had 52 in September and in March 50, having decreased the normal weight group by 2 or a loss of 3 per cent. It very likely reflects better health habits, and a definite effort to prevent illnesses in group "A." The two groups are fairly comparable in every way except in type of school organization.

Two special methods of handling underweight children for better results are illustrated with success in Newton, Oak Park, and Malden. Newton, Oak Park and other cities have special nutrition classes for this group in which special attention is given to individuals, with more frequent weighing and measuring as a check-up. In Malden those children who are 10 per cent or more underweight are given the opportunity to have a personal health habit interview with the teacher. The purpose of this is to help the child find his own weak spot, whether it be a defect or some habit weakness and thereby advise with him as to how to improve it. With respect to the habits the interview covers the previous 24 hours in order to obviate generalities. Excellent results in growth of children are had from both special methods.

That classic, *Health Education (Report of the Joint Committee of the National Education Association and the American Medical Association)*, says that absences may be used only as a partial measure of habit formation. Absences, one of the greatest causes of retardation, are due largely to condition of environment or to health habit, both of which are subject to change. And for that reason we seem warranted in using them as a measure of results of general and coördinated health activities. For instance a reduction of days lost from colds or scarlet fever or digestive upsets, would be a reflection of numerous phases of health work. It might be control of environment through the health service or the home. It might be due to improved habits and attitudes which are being built in the classroom and elsewhere. They may be taken then as a general indication of improvement or advancement. To quote Miss Brown again: "That the mothers and teachers continually mention the unusual freedom from colds this year is, I think, due to the consistent exclusion of colds from the schools, and to improved health habits and schoolroom air." In other words, here are three different activities which tend to be reflected in a decrease of certain absences.

In some schools as in Oak Park, Illinois, school attendance is taken as an index of health. The report* of Oak Park's two-year period of

* An Investigation of the Health of School Children. Maud A. Brown. Elizabeth McCormick Memorial Fund, Chicago, 1926. 144 pp., \$1.25.

health work is now available as evidence of the use of absences for indicating health progress. In our schools we have been doing health work too short a time to have anything definite to show in results. It is interesting to see the difference in the absences of group A and group B, although there is no intention of using one as a control or check group on the other.

COMPARISON OF ABSENCES IN GROUPS A AND B

<i>Total days absent</i>	<i>Number absent</i>	<i>Number not absent</i>	<i>Percentage not absent</i>
Group A 903	130	20	15 per cent
Group B 1645	181	5	2 per cent

Health reasons

Group A 551	130	20	15 per cent
Group B 1255	171	10	4 per cent

Non-health reasons

Group A 352
Group B 390

<i>Days absent</i>	Group A	Group B
<i>Per child absent</i>	6½	10
Health reasons	4	7½
Non-health reasons	2½	2½

We feel that we are justified in saying that in this instance a two-year health program probably shows a reduction in total number of days absent, a higher percentage of children who have not been absent for any reason and a shorter illness per child absent.

Group A has been doing health work for two years whereas group B started really only this past March.

Absences of themselves are a negative aspect of health. But is it not possible to use a negative situation for positive health teaching? If it is true, our most vital and dynamic teaching lies in the use of life situations in which the child is trained in leadership of thought to follow from effect to cause with some desire to correct the cause if it is undesirable, then we can use absences for positive teaching and for getting results or for improving the health status. Not long ago at a club meeting in one of the rural schools where I have been supervising health education the children adopted the motion that each child who is absent report at the next club meeting the cause of the absence; whether it

might have been preventable, and if so how it might have been prevented; what they did to get well (this to prevent self-medication); and how they safeguarded other people if the trouble was contagious. Later I attended a meeting of this same health club, when one of the boys reported his absence as due to chicken pox. His story of the cousin who broke quarantine to come to pay him a visit carried a force of positive teaching of social costs and social responsibility which could not have been equaled in any other way. This use of absences has been a constant check-up on habits, attitudes, and knowledge on the positive side. As a result of this there has been a tendency on the part of children with bad colds to stay home in order to take care of themselves and to safeguard others, and that not because some grown-up has made it a rule. In the opinion of the teachers there has been also a lessening of number of days of absence. In the graded school group B, these absences have been such convincing evidence of needs of more rest for the children at school and of some definite preventive work in the control of communicable disease that the parents are taking up the problem of immunization, provision of equipment for rest periods of children and reestablishment of the hot lunch.

With the recent shift from teaching hygiene as a store of isolated facts to its presentation as knowledge related to the life experiences of children we have now come to face the need of an adequate measure of results in health knowledge, habits and attitudes. There has recently been worked out at Teachers College by Miss Strang and Dr. Gates, a more or less comprehensive health knowledge test covering 30 different topics that enter into health teaching. Although habits and attitudes are probably of most importance yet knowledge is one basis for determining action and behavior and as such warrants due consideration. As stated in the June, 1925, *Teachers College Record*, one use of this test should be to improve teaching of health. To quote, "A test at the beginning of the term to find out where the children stand is especially needed to prevent unprofitable repetition and loss of interest due to teaching the same old thing or new facts which the pupils do not comprehend." The test given again at the end of the term shows the teacher what she has accomplished. And through the use of these tests improvement has been measured experimentally in the field of knowledge. This very important means of measuring results will no doubt become increasingly useful as health workers become proficient in means of educational measurements.

Similarly, health habits are susceptible to a check-up or measure. The questionnaire form has been used by the American Child Health Association in *A Health Survey of 86 Cities* and by others to find whether

or not there are improvements in the habits of children over a period of health teaching. The Malden Studies in Health Education * also uses the habit questionnaire to measure results.

The following items, picked at random from these Studies, show improvement in health habits in three years of health teaching:

More vegetables 24 per cent in experimental and 11 per cent in control

Open windows 18 per cent in experimental and 4 per cent in control

And these results measured in this way are corroborated by other objective measures. During the past year we have used a correlated health knowledge test and health habit test in the one-room schools, but we feel that we need to do further work in this. In general, however, the habit performance was inferior to knowledge, showing that one in health as in morals not always "does" as well as he knows. And in general there was an encouraging improvement over the year. The health knowledge test was made a year and a half ago but improved by the use of the Gates-Strang test.† The habit test needs further revision.

The inclusion of the health of the environment is accepted generally as an essential element in health teaching. Courses of study and hygiene books are evidence of its general inclusion. Then it is reasonable to expect to find some reflection of this in improved environment of the school at least and sometimes in that of the home. We feel that the improvements in this field are worth-while results. They are largely the results of children's activity and interest, with stimulation along this line by the teacher. This improvement is largely the product of building social attitudes and social responsibility. In the schools where I have been supervising for two years there are thermometers and a close watch is kept of ventilation, there are scales in two schools, window boards and they are used, playground apparatus made by the children, agitation for more and better playgrounds, cleaner schools and so forth. The particular stimulus for much of this improvement was a score sheet prepared for and used by the children. The scoring was done twice during the year in order to give the children the experience of checking up on their own efforts or accomplishments. It has been our experience that we are justified in taking this as a measure of result of health work and it is susceptible to measurement by figures.

It has been said that attitudes are more important than subject matter, but as yet we have no measuring rod for these. Attitudes are the

* Am. J. Pub. Health, C. E. Turner, May, 1925.

† The Gates-Strang Health Knowledge Test. Arthur I. Gates and Ruth Strang. Teachers College, Columbia University, New York City, 1925. 85 pp. \$1.

mainspring of behavior. It is probably upon the building of attitudes more than upon anything else that the permanency of our health teaching depends. While knowledge conditions somewhat what a child can do in matters of health, his attitudes determine largely what he will do. In spite of the fact that we have no exact measures of attitude I believe we are nevertheless justified in considering them as important results. Only the other day one of the teachers gave to me the answer to the hygiene examination question "How has health teaching benefited you?" as was given by one of the seventh grade boys. "Health teaching has benefited me very much. It has taught me to be helpful to others. It has helped me to be a better citizen. It has taught me to be considerate of the rights of others. It taught me the things not to do that were harmful to myself and to those who associated with me." This was the boy who paid the cost in chicken pox of someone else's carelessness in breaking quarantine. I regret that that teacher did not go further and ask Clifford to illustrate what he meant.

The children of one of the small schools last year resented every health activity as an interference with what is rightfully a home affair. It was no one's business whether or not they came to school clean—they resented inspections—they did not see why they should keep the school clean. This year inspections are made with the most rigid scrutiny. Ties grace the necks of all boys not because they make them any better physically but because they like the feeling of setting their own standards of decency and living up to them. In another school a new boy came in and it was discovered that he did not own a tie nor had he money to buy one. One morning one of the boys brought a tie to the teacher and whispered that he wanted to give it to Robert. It was done in so gracious a manner that Robert eagerly took it and put it on. Last year these children were everything that is incoöperative. This year some of those same boys told me of some children who were in their school earlier in the year and "who just did not know how to coöperate." They said, "We tried to get them to clean up and we did everything we could to help them but in the time they were there they never knew how to really belong to a health club." The whole spirit of that school is made over. Only the other day one of those boys told me how much he had enjoyed the health work and how much good it had done all of them. Not long ago when I drove into one of the playgrounds of a rather barren one-room school, I noticed a group of boys on one side of the grounds and all the rest of the children from 6 to 14 and 15 were roaming the hills over bringing in armfuls of rocks. They were all concerned with the making of playground apparatus, swings, and so forth. They have never had anything of

the sort before. It was entirely an activity of the children all working together and joyously for a common achievement. They are now planning to get the parents to help them grade their playground.

Is not the boy who chooses to pay for the correction of his defects in order to become a One Hundred Per Center a reflection of attitude? Is not the care and exactness of inspections an evidence of attitude? Not long ago at a health club meeting two or three of the boys and girls quite independently asserted that the inspector was not doing a good job and as proof one said that he had omitted to ask him whether he had taken at least two baths. The others reported other omissions. Is this not attitude? A boy reported staying home for some illness and at once he was asked if he called in a doctor.

In their health work the boys and girls are learning by experience to look upon health as a buoyant possession and feel that it is their responsibility to help each other to maintain it.

This paper has tried to bring together many of the various evidences of progress in health work, not as a measure of some specific factor, but of the sum total of health activities. Results came as a product of the enthusiastic, interested work of teacher, nurse, and doctor where there are the latter (the teacher seeing defect correction as a part of her business and the nurse and doctor seeing habit and attitude building as a part of theirs), all working together in *all* of the health activities with the parents prompted by a sympathetic understanding of what it is all about, seeing in the home a necessary laboratory for the practical application of the health teaching of the school.

OBSERVATIONS IN SECONDARY SCHOOLS

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THE OBSERVATIONS which will be discussed here were made in the course of a rapid survey of eight schools widely scattered through the Middle West, which had presented superior health program studies to the American Child Health Association in their 1925 contest for secondary schools. The survey was made for the purpose of securing additional information on projects of special interest embodied in the reports of the individual schools. These schools represent a high level of interest and effort in health problems. It follows, however, that observations made in these schools are not to be taken as characteristic of all high schools. Their significance lies in the fact that these schools are frontier thinkers, or at least, frontier workers, in health care for high school students.

The findings from a summary of the reports from all the schools coöperating will furnish a very interesting body of material, when made available by the Health Education Division of the American Child Health Association. The aim of this paper is not to attempt any anticipation of such a summary, but to point out significant achievements and equally significant failures which the writer feels indicate fruitful lines of experimentation and further study.

It became fully evident, as this study progressed, that a satisfactory health program for high schools is not just more of the health program for elementary schools. In every aspect, the high school situation presents new problems, new opportunities. As time goes on and we receive into our high schools children who are the fruit of enlightened health care from babyhood on, this will become increasingly true.

The health program of the high school may be differentiated into three types of services. The first is the provision of a school environment which meets accepted standards of sanitation and which makes possible the practice of personal health habits by the student during his school hours. The second is the supervision of the health of the individual student, results to be measured in his health status and health behavior, rather than in his knowledge. The third includes all the contributions to health knowledge, practices and ideals, which can be

made incidental to the teaching of the subjects of the high school curriculum and through the conduct of extra-curricular activities. Any adequate program must include all three divisions; this survey has shown a tendency to define these types of service, to place responsibility definitely, and to begin to create standards of accomplishment possible under actual school conditions. This has been most successfully done with regard to the environmental type of services; an excellent beginning has been made in service to the individual student's health development; but the third type of work, the overhead responsibility for health knowledge, practices, and ideals, has scarcely been touched. This state of affairs is a challenge, not so much to health workers, as to educators and administrators. That part of the high school health program which is the business of the high school faculty and student body is the most backward and undeveloped part. The high schools have submitted to having much good done unto them in the way of various health measures; they have now to work out their own salvation.

Under the environmental provisions for health, I have placed a somewhat heterogeneous collection of items. First of all, sanitation in the generally accepted sense of the word was given attention in every school studied. The best record is made in cleanliness of buildings and in adequate provision of lavatory facilities, gymnasium showers, and well cared for swimming pools. Lighting was bad in most of the schools; not only bad in planning of the building but bad as to shades and placing of classes and teachers with regard to direct light. There seems to be a very general lack of sensitiveness to bad lighting. Heating and ventilating were badly done, there being uniformly too much heat and too little ventilation, in the sense of providing cool, moving, moist air. In November, in moderately cold weather, the average of the thermometer readings taken was 79° F.; in many rooms the temperature was from 82° to 86° F. It seems to be a question whether it is possible to maintain good air conditions in spite of the artificial ventilating systems, ozonators and such, with which all these public schools are expensively equipped.

Another essential element in environmental hygiene is maintenance of comparative freedom from sources of communicable disease. With the exception of the common cold, infectious diseases are not a serious problem. In these schools there is evident an excellent attitude on control of infection, both among students and teachers. Their behavior in regard to the common cold was occasionally more commendable than that of the school nurses and physicians, who seemed disposed to regard colds as a normal part of existence. I saw no gross carelessness as to contagion anywhere, and many evidences of an enlightened conscience.

Paper towels, liquid soap and bubble fountains were found everywhere. Most of the fountains were not of the approved types; anything that bubbled was usually considered satisfactory. In the lunch room kitchens, dishwashing was often not so conducted as to secure sterilization of the table silver, cups and glasses, which are used again by another shift of lunchers almost immediately. Food handlers were not examined as to their being carriers of infection. Otherwise, the cleanliness and care of food in these kitchens was admirable.

So far as sanitation is concerned, then, we are making our best record in the field of cleanliness, next best in developing a conscience concerning spread of infections. We are guilty of gross carelessness as to lighting, heating and ventilation; all fields in which we have exact knowledge and practicable standards.

Provision of a hot lunch is another service to the hygiene of the school environment which has become firmly established in these progressive schools. This marks a distinct advance over the lunch pail and the candy store, but brings its own problems. These schools have solved most of them, and set a high mark for other schools to aim at. Foods are well chosen and prepared, and the cost to students is very reasonable. There are two aspects of the lunch room situation which present as yet unsolved health problems: the choice of food by students, and the indecent haste with which the meal is eaten. A good variety of wholesome food is offered, but the students do not choose well balanced meals. This was demonstrated by checking actual meals as the trays passed the cash register. As an example of community housekeeping, these lunch rooms are excellent; they save thousands of mothers the task of packing lunch. Considered as agencies for improving the food habits of the youth of the land they have scarcely touched the problem. Cutting undesirable foods such as pie, hot dogs, and potato chips completely off the menu, placing the candy counter near the exit from the lunch room instead of adjacent to the cash register, and serving a well selected "plate lunch" are expedients of demonstrated worth. Advice of teachers has not proved so useful.

The unimaginable rapidity with which students eat is encouraged by crowded conditions. Some schools run students through the lunch room in 12-minute shifts, in such a bedlam of noise from trays and dishes that conversation is impossible. As one teacher put it: "They attend strictly to business when they eat." They then rush off to a school movie, or to buy tickets for some school event, or stand in line for the distribution of a school paper, or engage in some other activity definitely placed in the lunch period, on the assumption that not more than 15

minutes will be wasted in eating. Perhaps, for a lifetime of quick lunch snatching, this is the proper introduction.

The achievements of New Trier Township High School, Kenilworth, in furthering the mental hygiene of the school lunch deserves study and emulation. They have a large pleasant mess hall; they allow 45 minutes for lunch, and deliberately plan to encourage loitering over the meal. The children ate in friendly groups, with evident pleasurable relaxation. Many were still at the tables when the period ended.

Play facilities are being provided more generously in the newer building programs. The older schools are far too cramped for land. A high school with a campus of thirty acres was the only one visited which did not feel hampered by lack of room. These administrators recognize that the need for play space is as important as the need for recitation space; but there is still inadequate comprehension of the rôle of play in education; especially is this true for girls. Too much of the appreciation of sport is related to winning teams and the pride of the local chamber of commerce.

The arrangement of the day's schedule with regard to the well-being of the students has made little progress. There is need for research studies to establish optimum hygienic and educational standards, which do not now exist, as to hours of study, work, and recreation. It is, however, generally claimed by hygienists that some provision for hand-washing before meals should be made. No public school is making this provision, and no administrators with whom I talked thought it worth the trouble to make it.

The experiment of John Burroughs School, St. Louis, in its junior high program, is the most important contribution yet made in this field. The school day is broken at 11:30 by lunch and 2 hours for outdoor play, the students returning to classes at three o'clock fresh and keen. Every teacher insisted that the results were excellent, so far as academic achievement was concerned; the advantages from the standpoint of health are obvious.

It is probable that the most important factor in providing an acceptable school environment is the adjustment of the school task to the capacity of the student. All of the schools studied make some efforts in this direction. Segregation according to mental capacity is being attempted, but no one is satisfied with the results. The tests available are not so useful for older children as for those of the elementary school level, and very few teachers can adapt high school subjects to the low capacity sections. There is nothing more important as a mental hygiene measure for high schools than the solution of this problem, which cannot be solved by health educators, but only by the high schools themselves.

Our second division of school health service is concerned with bringing every student to his optimum state of physical well-being, and with training him in such personal health practices as will insure the maintenance of this happy condition. The ideal of school supervision of individual health development is a new one, not inherent in the earlier efforts at medical inspection, hygiene teaching, or physical education. The clearest recognition of the task and the most successful provision for accomplishing it have been made in three schools visited, New Trier of Kenilworth, Illinois; John Burroughs of St. Louis; and Fairmount Junior High of Cleveland. The essential features of the plan followed by them are two: First, the organization of a group of specialists operating in relation to one coördinating and responsible person, designated by the principal as the health counsellor; second, the education of every teacher, administrator and professional health specialist in the significance of the health service, to the extent of using its facilities in his own dealings with students, and appreciating the relation of his own contribution to the whole.

The more clearly the functions of the health counsellor are differentiated and the more fully his responsibility for coördination of all health work is recognized, the more effective the health program is found to be. In one school the person designated as counsellor is the physical director; in another the school nurse; in still a third, the hygiene teacher. It does not seem to matter from which of these three groups the counsellor is chosen. The choice between full-time special teacher of hygiene, full-time nurse and full-time physical education director seems to have been somewhat a matter of personality, but it is more a question of special interest and preparation in this field. No one is prepared to be health counsellor for a high school by virtue of his training in any of these other fields; it is a question of finding some one sufficiently interested to train himself for the task while he works away at the task.

The chief duties which I found the health counsellor performing were as follows:

1. The counsellor assisted in the routine medical inspection, and interpreted these and other findings to teachers. For instance, in one school every class adviser was furnished with lists each month, showing students under her charge who were in the physician's judgment below par as to nutrition and general hygiene. In another school, the counsellor went over the eye defects with the adviser who was responsible for getting information and advice to every teacher dealing with students having seriously defective vision.

2. The counsellor taught personal hygiene to small classes, with the definite objective of improving the health of the individuals taught. This is carried on intensively in the first year of the student's school career. It is based on thorough

knowledge of the health status of every student, and guided by the best technical advice available. Results are best where this aim is clearest, least confused with giving general information.

3. The counsellor also carried on personal supervision of individuals, not first year students, who present special health problems. In these schools, this group was about 10 per cent of the school population and included students returning after illness and those presenting constantly recurring minor ailments.

4. He reported monthly to the principal on absences due to illness, recommending policies in this field. In two schools, a remarkable reduction in absence rate had been achieved during the incumbency of the health counsellor. The rate in these schools was less than half that in the other schools visited.

5. The counsellor is also responsible for school health publicity, through bulletins, newspapers, posters, exhibits, and through health talks in school and out.

6. In two schools, the counsellor maintains a very close relation with the other teachers, giving counsel on personal health problems, and furnishing material for health teaching relevant to the regular academic classes.

In schools without a health counsellor type of organization, these duties were curiously distributed, some being performed several times over by as many departments (as supervision of underweights by three departments simultaneously and independently) and others not performed at all. This confusion is at present the greatest drawback to progress. A modern secondary school, of a thousand or more pupils, is and must always be a very highly organized institution. For securing maximum effectiveness in the application of the services of specialists and the welfare of the individual pupils, this is by far the best device we have come upon, and must be counted as well worth its modest cost. It should be possible to work out the training necessary for such a specialist in secondary school health, and offer it in several educational centers in extension and summer session work, in order that nurses, physical directors and others may improve their preparation for this service, as rapidly as the need for the service is recognized and positions are created.

The school physician's relation to this program is an essential one. For the school as a whole, he is responsible for communicable disease control. In meeting this responsibility he relies on the health counsellor for the first warning of an epidemic, and for carrying out the defensive measures which he suggests. With regard to the individual student, the school physician determines whether he is free from serious health handicaps, whether he can profitably and safely enter the regular physical training classes, and whether he is, from the medical standpoint, able to carry out the ordinary school and home routine. Medical inspection gives the individual a base line, from which every boy and girl must begin constructive work for personal efficiency. This service is not remedial or even diagnostic in any adequate sense. There is no tendency

to replace the family physician by the school physician, even in the field of preventive medicine.

The relation of the physical director to this program of constructive health supervision of individuals is quite as vital as that of the physician, the dentist or the nurse. The tendency generally recognized by the physical educators themselves has been to leave too much on their shoulders. This arises out of failure to recognize that physical training has another contribution to make to the education of youth. Its service in the field of morale, and personality development, wholesome provision for leisure and citizenship training, through directed play, is too valuable to be sacrificed to a program of detailed individual health supervision. In a very small school, the physical director functions admirably as health counsellor, but in a large school such a combination of responsibilities would make a load too heavy for one person.

The provision of a wholesome school environment, and the careful supervision of individual health development, are fields in which standards are at least partially agreed upon, responsibilities susceptible to clear definition. In the third subdivision, that of contributions to health knowledge, practices, and ideals, which can be made through the activities of the high school itself, we have no standards, indeed we have scarcely begun to realize that such contributions are possible and desirable. In all the schools visited, there was frank dissatisfaction with the health instruction, both specific and as offered in basic subjects. There were encouraging glimpses of what might be accomplished in chemistry as to foods, drugs, water supply and sewage disposal; in physics as to ventilation, heating and lighting; in biology as to communicable disease control; in social studies as to relation of community and national health to large economic and political problems. Some excellent health work was being carried on in a class in current events, for instance. But it was assumed all too often that "health instruction" meant exhortation as to personal health habits, and so, quite properly, did not belong in close-knit, well-organized courses in academic subjects. So far as the hortatory or enthusiastic phases of health instruction are concerned surely chemistry is no place for them, but to serve the larger purposes of sound judgment on health questions as they confront the householder and the citizen, something more objective, less colored with emotional appeal and better documented with hard facts, is called for.

We have failed to recognize that this sound knowledge can best be given in its organic relation to other knowledge, as an integral part of those intellectual disciplines to which it naturally belongs. These are, judging by results achieved in the schools studied, the social studies, the sciences, both pure and applied, and English. Careful study and experi-

mentation in these fields will yield standards for such distribution of time and emphasis within their proper subject-matter as will give to students mastery of those parts of the subject which bear directly on human conduct and welfare. When we have achieved a reasonably adequate inclusion of health material in these fundamental fields, we shall have begun that much desired humanizing of knowledge, at a level of popular education which comes every year nearer the ideal of bringing a liberal culture to all the youth of the nation.

UNIFYING THE SCHOOL HEALTH PROGRAM

DANIEL J. KELLY

Superintendent of Schools, Binghamton, New York

FROM THE various sections of the country and from many fields of activity we gather in this great Congress, all moved, undoubtedly, by a common impulse and prompted by the same desire. We are considering the subject of health, that most vital of all human and public interests. We hope, as a result of these deliberations, to be able to mark out a clearer path and to determine upon more definite and effective methods in order that there shall be an increase in the sum total of human efficiency and happiness.

An examination of the program reveals the fact that there are many agencies and organizations represented by a considerable number, but apparently few of us come directly from the school and I seem to be the sole spokesman of the executive or administrator in that institution. It is only reasonable to assume, therefore, that I am to speak as a representative of the school and for those responsible for its administration. This places me in a paradoxical position. School people are supposed to be mere theorists while my obvious function is to talk of practical matters. It is not this situation, however, but rather a sense of the responsibility and the opportunity involved that overwhelms me.

"'Tis Education forms the common mind;
As a twig is bent so is the tree inclined."

Theodore Roosevelt gave us a prose version by saying that whatever we do for a man must be done for him before he becomes a man.

Nations have applied the same principle, recognizing the fact that whatever is to be thoroughly instilled into the life of their people must come through that institution established to train their children, namely their public schools. The founders of America with their God-given vision saw this and though it has been with only a partially awakened consciousness, we have built accordingly. Now the American people are beginning to see with greater clarity the purpose of their schools and are becoming increasingly alert to their possibilities as well as to their needs.

Our schools are declared to be for all the children of all the people. The present accepted educational aim for all these children is social

efficiency. We are called upon to provide for each and every child those situations which will bring him experiences which will enable him to meet effectively the problems of life. The particular fitnesses which are essential to living efficiently as a member of any social group are numerous. It has been the business of educational leaders to determine those fitnesses or phases of social efficiency which rank first in importance. These have been variously expressed but the consensus of the soundest modern opinion sets up approximately the same category.

One reasonable and generally accepted classification emphasizes:

1. Vital efficiency (health fitness)
2. Vocational efficiency (artistic consciousness and skill)
3. Avocational efficiency (profitable use of leisure)
4. Civic efficiency (ability to assume the responsibilities of citizenship)
5. Moral efficiency (religious or ethical character)

This interpretation of educational aims not only places vital efficiency, or health fitness, first, but inextricably interweaves it with the other four.

The National Education Association Commission on Reorganization of Secondary Education has set up seven cardinal principles as follows:

1. Health
2. Command of the fundamental processes
3. Worthy home membership
4. Vocation
5. Citizenship
6. Worthy use of leisure
7. Ethical character

Here again we find health as first of educational objectives. Further, its bearing on the others is evident, for the child hampered by defects and susceptibility to disease and by bad habits of living cannot measure up to his full ability in command of the fundamental processes, or the proverbial "Three R's," and neither will he be able to reach the highest possible goal in home membership, in vocation, in citizenship, in the profitable use of leisure, nor in ethical character.

Let us for a moment consider the meaning of health. Dr. Jesse Williams defines it as "the quality of life that renders the individual fit to live most and to serve best." This broader conception of health pictures the healthy individual not alone as free from disease but as one fitted physically, mentally and morally to cope with the emergencies of life. Health, then, is surely a fundamental aim of education and its definite consideration as a part of every sound school program is therefore incontrovertible.

The wonder is that school authorities so long failed to recognize their responsibility, denying the child his inherent right to the opportunity for

normal growth and complete development, physically, mentally, morally and socially.

It has been the general policy, until the last few years, to leave education in health almost entirely to haphazard, chance conditions. In fact, in matters of health, the attitude of our generation of educators might be likened somewhat to that peculiar religious sect whose favorite hymn is:

Do not come in the morning
Neither in the heat of the day
But come along in the evening, Lord,
And wash my sins away.

America has at last awakened and is beginning, with more or less intelligence, to assume her obligation. School systems are becoming aroused to their no-longer-to-be-ignored duty in this essential of practical education.

The awakening has been gradual and somewhat spasmodic and various have been the approaches to the subject of health education. The programs developed have been widely diversified and the terms employed to convey the ideas of training a child in health numerous. There seems to be no unanimity in thought or uniformity of standards in methods, procedure and organization. From this condition arises our greatest present need; our objectives are quite well defined and established; the various separate activities are more or less successfully carried on. It is now time for the public to recognize the strategic position held by the schools, and for the school systems to adopt a coördinated program, comprehensive and practicable, and to perfect an organization that will make this program function effectively in the actual living of the children.

The development of the program will be necessarily controlled, or at least strongly affected, by the type of community to be served. There are, however, reasonably uniform criteria by which the school determines what shall constitute the course in each subject, as well as what subjects shall be offered. Its relative utility and the fact that nowhere except in schools can much of its content be taught effectively, is sufficient guarantee for giving health and physical education, with standards for evaluation, a definite, permanent part in the curriculum. Furthermore, it is a function of the school to organize in a unified course the various subjects which have proved or are proving their value. In this day it would certainly be considered impracticable to have a separate organization for teaching each subject, not to mention the greater waste of having a distinct organization for the teaching of different divisions of the same subject.

For many years it has seemed to me not only theoretically sound, but absolutely practicable, to organize in a unit course, known as "health education,"* all those selected activities as well as such bodies of knowledge as will tend toward the health of the child. Such a course and department we have developed in Binghamton.

For twelve years this course has functioned as an integral part of our school system, health education being treated as "regular work" from an educational standpoint and being accepted as the fundamental in all of our school activities and achievements. In other words, it stands at the head of the list, in harmony with what I have already cited as the category of educational objectives.

Pardon me for referring to our system, I do so with no thought of advertising or boasting, but you may see that it offers my best source of material for illustrating that which I am attempting to present. By outlining briefly the development of our own health work, I may be able to explain how a school health program can be not only organized but unified.

On February 1, 1914, with a school population of 7,000 children, we introduced a department of physical welfare. I was fortunate in securing as director the one who was to do the pioneer work in planning, organizing, and operating, a person of rare intelligence, with the vision of a prophet and the skill of a genius. She gave us a clear-cut view of the place, scope, content and machinery necessary for successful health education. In order to awaken dulled brains and dormant sensibilities, she prepared a graphic illustration of what she was projecting.

This foundation laid in 1914 has stood the test of time with the changed educational viewpoint, enlarged school responsibility, broadened scope of activities and a rapidly growing clientele. Our ideas along some lines have changed materially and we trust truly we have progressed. Nevertheless the scheme outlined and projected in the beginning is the backbone of the program which to-day takes care of the school health of over 13,000 public school and nearly 3,000 parochial school children, as well as the health supervision and training in service of over 500 teachers.

For reasons which need not be explained to this group we found our logical starting point in what was then called medical inspection. Our initial staff was the organizer previously referred to, who was a registered nurse with teacher training and experience, and one part-time

* It is of importance to the reader to note that this term "Health Education" as used in Binghamton includes all the contributing factors of a health program which in the fourth year book of the Department of Superintendence of the National Education Association are described under the term "Health Education and Physical Education."

physician. The former was definitely appointed as supervisor of physical welfare.

Immediately following the introduction of medical inspection, physical education was given its place in our curriculum. The school day was extended to provide in the elementary grades two out-of-door recreational periods daily; 25 minutes each morning for organized play and 15 minutes in the afternoon for free play. At the same time provision was made for a regular program of physical education in the secondary school and relief drills, informal and formal, were introduced in all grades from kindergarten through the high school.

Our work has been gradually expanded and revised to meet our later needs. During the past few years a rather complete educational program in nutrition, and a vitalized course in personal and general hygiene for elementary schools have been put into practice. School dental service, both prophylactic and operative has been installed; crippled children, open air, subnormal and other special classes have been established. Summer playgrounds, formerly conducted as a distinct activity, are now under the supervision of the health education department.

As these various phases of health education have been introduced they have been coördinated and kept under unit supervision. An administrative director, now known as the director of health education, is responsible for the coördination and the functioning of all school health activities. With the approval of the superintendent, she organizes, outlines, promotes and is responsible for the general health education program for the entire system. Her work in the schools is necessarily carried on largely through the principals and department heads of the special health staff. She has charge of all required records, data, materials and supplies for the health education department. This administrative office provides a center for all school health workers and is the schools' source of information concerning health work and health problems. It is, furthermore, the school system's point of contact with coöperating public and private health organizations and agencies. Last, but very important, the director of health education must see the whole field and only from a central position can she get the proper perspective of all operations of the various groups of workers.

My experience has taught me one outstanding fact, that the secret of success in the unifying of a school health program and the functioning of the organization lies in the choice of director. The position calls not only for technical health knowledge but for a keen, far-reaching vision of the field of education as a whole, fine professional consciousness, high teaching skill, and strong executive ability with sympathetic approach and first-hand understanding of the problems of the classroom in terms

of teachers, children and parents. Only such a person can keep the machinery of the department adjusted for smooth running and efficiency, see that the health unit is fitted into the major school unit to make it function properly in the larger machine, and cause its worth to be appreciated by the workers themselves and by the community served. Through such direction the school health program may be sold at par value.

In each of the separate phases of health education those responsible for the technic of each phase of health education are the specialists in their respective fields. To illustrate: Specialists supervising health instruction and physical education are responsible for courses of study, subject matter and methods used by the teachers of that particular subject; while it is the province of the administrative director, through the school principals, to make this work function as it should in the classroom, gymnasium or playground. The paths of these specialists must be so cleared of unnecessary difficulties and obstacles as to admit of the most effective use of their special knowledge, training and skill. The same principle applies to the health service program of physicians, dentists, nurses and hygienists. With due recognition of the rights of other directors of instruction and deference to them, the way of all health specialists in the schools must be well prepared to avoid conflict, overlapping, uncovered spaces, loss of time and waste of effort.

Have you known the school system which pays a good salary to some specialist, but which gives him no time in the teachers' daily schedule in which his work can be taught? Some of these specialists are provided by the school administration but are not given the necessary prestige to enable them to work in the classrooms. Such a condition is not only most discouraging to any spirit of enthusiasm and effort upon the part of the specialist, but absolutely deadly to educational progress no matter how worthy the project.

Besides giving these specialists a time and place in which to work, each of them before entering the field covered by an effective health education organization must understand definitely that he is but a single spoke or cog in the wheel which is turning in one direction along the road to child health, and that the wheel is only a part of a vehicle or larger organization working for the complete training of the child. This does not mean that individuality of expression is in any way discouraged so long as it is a practicable expression which does not clog the machinery; that is, which does not interfere with the activities of other workers, or run counter to the general program. The greater the contribution the specialist makes, the better. He is expected to contribute

not only knowledge, training and skill but enthusiasm, originality, and personality.

The specialist must also realize that he may expect, in the way of motive power and lubrication to keep the wheel running smoothly, administrative support from the director of the department and the superintendent of schools together with the coöperation of all other members of the staff, both departmental and general.

Another material aid in coördination is found in many group and general health conferences and frequent discussions with principals and teachers. In order that these may function properly they must be authorized by the superintendent of schools, teachers and principals as well as members of the health staff being led to see their value as a means of improving one's service.

These conferences, though having a common end in view, will serve different immediate purposes. At group staff meetings the special aims, problems and results of a certain line of work will be discussed; at other times, when the entire health education staff meets, the work of the various sections is reviewed so that all staff members may gain a better perspective of the whole field, and a clearer understanding of the aims and accomplishments of other specialists. Attendance at general faculty meetings tends to keep in mind the major objective and general organization.

Conferences of principals with the administrative director are of infinite value. At such times principals are informed as to the activities and aims of all specialists, and ways in which their work can best be promoted or fitted into the general program are discussed. It is most important to see that principals are informed concerning the health education material which should be in the hands of all their teachers or in their school library. They should, of course, always be supplied with copies of the courses of study and schedules sent to teachers. If principals are not given consideration in these matters, those directly in charge of the health program should not be surprised if their work does not function in the schools as satisfactorily as desired.

Last, but by no means least, the teachers' conferences! We specialists and administrators may expend all our thought, energy and skill upon this matter of establishing in the life of every child those habits and attitudes which shall mean for him "abundance, soundness and worthiness of life," as Dr. Wood expresses it, but if we have not seen the significance of the teacher's position in our scheme of things, we are doomed to disappointment. I do not mean by this that the teachers need to attempt to do the work of the specialist. I still think that innumerable things to further the child's health interests can be done

better by physicians, nurses, and other specialists than by the teachers. While the education of the teacher must be broadened and deepened in health knowledge and practice, I do not believe it is wise to turn over to her too much responsibility for health examination and follow-up. I believe it is the business of health specialists, first, to see that the child is physically fit; and second, to guide and supplement the teacher's work of bringing to the child those experiences by means of which he shall become educated in health. Through group and individual conferences with specialists, classroom supervision and normal courses given by the supervisory staff, the teacher who wins the coöperation of the parent, and what is still more essential, the whole-hearted interest and response of the child himself, teaches health.

CONCLUSION

You now have the substance of my story of how a health education department may and, I believe, should be unified. Such organization and unification is simply fixing a place for everything and putting everything in its place; or possibly it might be more nearly correct to say fixing a place for everybody and putting everybody in his place. Unification of the school health program spells "system" which is applied common sense. It is the *modus operandi* by which our fundamental democratic institution, the public school, may assume its predominant responsibility and carry that responsibility to successful achievement.

And in the last analysis we must recognize that if we are ever to become a healthy nation the path leads to and through the schoolrooms of the country where over 700,000 teachers meet and train in knowledge, habits, skill and attitudes the 25,000,000 children soon to become the ruling body of our great American democracy.

The following tables show the organization of our program and the special health education staff.

HEALTH EDUCATION

PROGRAM

I. School health supervision

A. Medical service

1. For pupils—health examinations follow-up; preventive treatment; clinics for indigent
2. For teachers—health examination and preventive treatment
3. For custodians and all other school employes—health examination and preventive treatment

B. Dental service

1. For pupils—prophylaxis; clinics for indigents
2. For teachers—prophylaxis only

C. Disease prevention

1. Inspection
2. Exclusion
3. Introduction

STAFF

DIRECTOR OF HEALTH EDUCATION

I. School health supervision

A. Medical staff

- Chief school physician
- Assistant school physicians (2)
- Eye, ear, nose and throat specialist
- Orthopedic specialist
- Neuro-psychiatrist
- Nurses, registered with state certification (7)

B. Dental staff

- Dentist
- Licensed hygienists (3)

C. Disease prevention workers

- Physicians
- Nurses
- Hygiene supervisor
- Principals
- Teachers

PROGRAM

D. Health supervision of special classes

1. Crippled children
2. Open air
3. For mental defectives
4. Conservation of eyesight (September, 1926)

STAFF

D. Special classes

1. Crippled children

- Orthopedic specialist
- Orthopedic nurse
- Principal of crippled children's school
- Special teachers (2)
- Hygiene and nutrition supervisor
- Physical specialists

2. Open air

- Chief school physician
- Nurse
- Principal
- Special teacher
- Hygiene and nutrition specialist

3. For mental defectives
 - Psychiatrist
 - Nurse
 - Principal of opportunity school (trained examiner)
 - Special teachers (6)
4. Conservation of eyesight
 - Ophthalmologist
 - Nurse with special training
 - Special teacher

PROGRAM

- E. Sanitary inspection of school plant

STAFF

- E. Sanitary inspection of school plants
- Physicians
 - Superintendent of buildings
 - Principals
 - Janitorial staff

PROGRAM

- II. Physical education
1. For pupils of
 - a. Elementary schools
 1. Required
 2. Extra-curricular
 - b. Junior high schools (September, 1926)
 1. Required
 2. Extra-curricular
 - c. Senior high school
 1. Required
 2. Extra-curricular
 2. For teachers—recreational classes

STAFF

- II. Physical education
1. For pupils
 - a. Elementary schools
 - Physical supervisor—primary grades and girls' recreation
 - Physical supervisor—boys' recreation
 - Classroom teachers
 - b. Junior high schools (September, 1926)
 - Physical supervisor for girls
 - Physical supervisor for boys
 - Special instructors for girls
 - Special instructors for boys
 - Classroom teachers

- c. Senior high school
 - Physical supervisor
 - Physical instructors for girls (2)
 - Physical instructors for boys (2)
 - Assistant coaches—instructors in other departments (2)
 - Classroom teachers
- 2. For teachers—physical specialists

PROGRAM

III. Health instruction

- 1. Supervised teaching of hygiene and nutrition from kindergarten through the eighth grade
- 2. Individual instruction by medical and dental staff
- 3. Unsupervised health teaching through the basic subjects from ninth through twelfth year
- 4. Hygiene lectures in physical education classes
- 5. Correlations

STAFF

III. Health instruction

- 1. Hygiene and nutrition supervisor
 - Classroom teachers
- 2. Doctors, dentists, nurses, hygienists
- 3. Classroom teachers
- 4. Physical instructors
- 5. Teachers of practically all subjects

PROGRAM

IV. Hygiene of instruction

- 1. Arrangement of school program
- 2. Seating—adjustments
- 3. Lighting
- 4. Fatigue
- 5. Janitorial service

STAFF

IV. Hygiene of instruction

- 1. Supervisor of hygiene
- 2. Physicians
- 3. Nurses
- 4. Physical supervisors
- 5. Janitorial staff

PROGRAM

V. Mental, emotional and social health

- 1. Individual examinations with recommendations and follow-up
- 2. Incidental classroom teaching
- 3. Extra-curricular activities

STAFF

V. Mental, emotional and social health

1. Neuro-psychiatrist
Special class examiner
Nurse
Teachers
2. Hygiene supervisor
Classroom teachers

PROGRAM

VI. Training of teachers in service

1. Daily supervision
2. Normal courses
3. Instructors of physical education, music, dramatics, public speaking, art, etc.

STAFF

VI. Training of teachers in service

1. Director (administration of the program)
All specialists
Principals
2. Hygiene and nutrition supervisor
Physical supervisors

PROGRAM

VII. Summer playgrounds

1. Handwork
2. Physical and other recreational activities

STAFF

VII. Playgrounds

1. Handwork supervisor
- { 2. Physical supervisor
- } 3. Specially assigned teachers

SPECIAL HEALTH EDUCATION STAFF FOR 1926-1927

ADMINISTRATION

DIRECTOR OF HEALTH EDUCATION

SECRETARIAL ASSISTANT

I. School health supervision

A. Medical staff

1. Physicians
Chief school physician
Assistant school physicians (2)
Eye, ear, nose and throat specialist
Orthopedic specialist
Neuro-psychiatrist
2. Nurses (8)

- B. Dental staff
 - 1. Dentist
 - 2. Hygienists (3)
- II. Physical education
 - A. Supervisory staff—physical
 - Supervisor for primary grades and girls' recreation in elementary and junior high schools (1)
 - For boys' recreation in elementary and junior high schools (1)
 - Department head in senior high school (1)
 - B. Instructional—physical
 - Instructors for girls in junior high schools (2)
 - Instructors for boys in junior high schools (2)
 - Instructors for girls in senior high schools (2)
 - Instructors for boys in senior high schools (3)
 - Assistant coaches—instructors in other departments (2)
- III. Health instruction
 - A. Supervisory staff
 - Supervisor of hygiene and nutrition, in elementary and junior high schools

The length of service of these staff members ranges from that of new appointees for the two junior high schools opening in September, to 12 years, for the chief medical inspector. Other specialists have been a part of this organization for 9, 10 or 11 years while the present director has held the position for 7 years.

JOINT SESSION WITH THE CHILD HYGIENE SECTION
AMERICAN PUBLIC HEALTH ASSOCIATION

Presiding: GEORGE T. PALMER, DR.P.H., *Director of Research, American Child Health Association, New York City*

Making the Environment Count for Health Education

The Scientific Aspects of School Ventilation

C-E. A. WINSLOW, DR.P.H., *Professor of Public Health, Yale University, New Haven, Connecticut*

School Sanitation from the Standpoint of the School Administrator

JOHN R. McLURE, PH.D., *Professor of Educational Administration, University of Alabama, University, Alabama*

Lunch Room Facilities and Their Educational Use

EMELINE S. WHITCOMB, *Specialist in Home Economics, United States Bureau of Education, Washington, D. C.*

Play Spaces as Health Education Equipment

CLARK W. HETHERINGTON, *Professor of Physical Education, School of Education, New York University, New York City*

THE SCIENTIFIC ASPECT OF SCHOOL VENTILATION

C.-E. A. WINSLOW, Dr.P.H.

Professor of Public Health, Yale University, New Haven, Connecticut

AS MOST of you know, our ideas as to what constitutes good ventilation have changed more or less materially during the past twenty-five years. The old theory was essentially a chemical one, that is, it was thought that to insure good ventilation all we needed was to replace the air which was chemically polluted, by a supply of fresh air which was not polluted. We used to talk about the air we breathed, and assume that the air of a badly ventilated room was of a quality that was not good enough to breathe. We measured the chemical composition of breathed air, in comparison with the outside air, using the carbon dioxide concentration as a standard. The end result of that theory was that our ideal was to introduce into the schoolroom the largest possible amount of fresh air, and this ideal is embodied in the statute law on official regulations of half the states in the Union.

While the campaign was going forward for the compulsory airing of schoolrooms on this basis, the studies of physiologists and chemists as to what constituted fresh air were also advancing and reaching fundamentally different results. I have felt a keen sympathy for the heating engineers in their dilemma, because under the old theory they designed elaborate systems of fans and ducts admirably adapted to supply a large amount of fresh air, and when this was done the hygienists pushed their theories further and discovered that there are no chemical poisons in expired air, and that the old bugbears of "morbific matter" and "anthropotoxins" did not exist. In other words the air of the worst ventilated room under the most crowded conditions, is perfectly good to breathe, if we make one exception, and that is where the air is polluted by poisonous fumes and dusts from industrial processes. What then is the trouble with the air of a badly ventilated schoolroom?

One of my colleagues, Professor Lee, states that the problem of ventilation is physical, not chemical; cutaneous, not respiratory. In other words, air is bad because it is overheated, not because it has suffered chemical change. High temperature, and lack of air movement make it difficult for the human body to give off heat into the surrounding atmosphere. I need not take up your time here by dwelling

on the various experiments that have been made in regard to this subject. The work of Hermans, in 1883, and of Flügge in Breslau, in 1905, laid the basis for these conclusions. Later much was done in this country by the New York State Committee on Ventilation, and their studies fully confirmed the physical, rather than the chemical theories of ventilation. It has been shown in numerous such studies that if heat and moisture and carbon dioxide go up and oxygen goes down, as happens in a closed experimental chamber, the subjects will become uncomfortable and will even become acutely ill. This condition cannot be relieved if you permit them to breathe fresh, pure air from outside through a tube, but if you permit them to breathe the vitiated air, but cool the chamber by cooling coils or by revolving fans, their symptoms are completely removed. In other words, the discomfort and damage to health are due to interference with the heat regulating mechanism of the body, and to nothing else! The knowledge of these facts has carried with it a certain disadvantage. As long as you could talk to the public about accumulation of carbon dioxide and morbid matter, you could frighten people into opening their windows, but if you say, "The room is too hot, that is all," they think that overheating does not matter; but it matters very much. Even slight overheating has a detrimental effect on the body. First, there are the direct physiological effects, such as the effects upon the body temperature. Our bodies are marvellous thermoregulators; but it has been proved that even such a slight thermal difference, such as that involved in overheating the atmosphere from 68° up to 75° F. will cause a slight rise in body temperature, a rise in pulse rate and a rise in respiratory rate; a fall in blood pressure, and a definite general lowering of the tone of the vasomotor system, or the heat regulating mechanism of the body.

Second, there are the effects on bodily efficiency and the power or inclination to work. In the findings of the New York State Commission on Ventilation it was shown that with a rise of room temperature from 68° to 75° F. there was a reduction of 15 per cent in the efficiency of work performed. When the temperature was raised to 86° F. there was a 37 per cent reduction in the work performed. Therefore the total loss of efficiency in industry due to the gross overheating which is generally prevalent, must be simply enormous.

We have recently made an attempt to carry out a comprehensive study of industrial production in a factory under different temperature conditions where the workers have been accustomed to work with a temperature of 75°. We took certain workrooms and kept them at a more comfortable temperature, but we were unable to continue the experiment because the workers had formed such vicious habits that

they demanded a temperature of 75° in the workrooms. However, next fall, we hope to begin gradually luring them on to healthier conditions without their realizing it.

Another important effect is the influence of overheating on the amount of respiratory disease. We found in New York City that even a difference in the average temperature of two or three degrees caused material increase in respiratory diseases. We conducted our studies with a group of 2500 to 3000 school children, carefully watched by nurses, who investigated every case of respiratory disease and of absence from school. We noted very surprising results the first year and we repeated the study the second year. In a group of children kept in rooms at a temperature of 68.5°, there was 18 per cent more absence, and 70 per cent more respiratory disease, than in a control group of children kept in rooms with a temperature of 66.5°. These experiments have been confirmed in Washington, D. C., and other places. It seems clear that even two degrees of temperature may make a difference in the prevalence of respiratory diseases which are so greatly favored by the transit from overheated rooms to the cold out of doors.

The first point to remember then is that no schoolroom and no living room is fit for occupancy unless it has a thermometer, with intact bulb, fastened to some prominent and fairly representative place; this should not be over the radiator, and should not be near the window frame.

In the schoolroom someone should watch that thermometer, and one of the most useful and instructive things we can do for school children is to have a thermometer with a heavy red line at 68°, placed opposite the teacher's desk. An invention that would be even more useful would be one that would explode when the temperature reached 68°, and fill the room with fetid gases. That will perhaps be an important piece of ventilation equipment in the future.

You will pardon me for impressing upon you so elementary a fact; but after reading the thermometer, the next thing to do to insure proper ventilation is to turn the heat off. Few people seem to realize that a primary essential in ventilation is to avoid artificial heat in excess. Many an office is badly ventilated because the heat is turned on in October and not turned off again until May.

Next it must be remembered that aside from the proper manipulation of heat sources, heat from the human body accumulates and raises the heat of the room, so that in schools we must also provide by ventilation, not for dilution of poisons but for the introduction of cool air and the escape of warm air.

As a rule, the open window is adequate in the home and the office,

but it must be intelligently used. Most people have an idea that if they open a window something will happen. Perhaps it will if there is a wind blowing. In the absence of wind we must have one opening where cool air will come in and another where warm air will go out. In a hotel room where there is a transom over the door, if the transom and the window are open, the hot air from the hotel is frequently carried through the room all night from transom to window without ventilating the room at all.

Window ventilation in its unmodified form will not do for the school-room. The New York State Commission on Ventilation has found that the following points are necessary:

First: Admission of fresh air over a slanting window board.

Second: Radiation under the window to take the chill off the incoming air.

Third: A gravity exhaust duct open near the ceiling and running up through the roof of the building.

This system in scores of schools has proved itself efficient and satisfactory. In New York City it proved immeasurably superior to fan ventilation. Rooms were more comfortable and cooler and showed greater freedom of the occupants from respiratory diseases. The comparison of temperatures of 66° and of 68° cited above was really a comparison of fan ventilation and modified window ventilation. If we practice fan ventilation with 30 cubic feet of air pouring into the room, we must keep overheated in order to avoid chilling by drafts, but with a moderate air current from windows to gravity exhaust duct we can keep the room at 66.5° with greater comfort and greater freedom from respiratory disease, as I have indicated. There is also in addition the factor of the greater economy and simplicity in construction and working of the school ventilation.

I want to say a word in regard to the specific application of these facts to the problems of the school. The problem of health education is a problem which involves a combination of theory and practice. We passed through a preliminary phase, lasting about 50 years in which health education was based on theory alone, and generally fallacious theory at that, in which pupils were taught to memorize lists of the bones of the skull or the branches of the carotid artery. Thanks, however, to the brilliant vision of such educators as Emmett Holt and Miss Sally Lucas Jean, the aims of health education were changed and we have entered upon a new era. We have found that if health education is to mean anything it must be concrete. It must take in the formation of habits as fundamental to the whole plan. This newer technic of pedagogy is by far the most significant thing that has happened in

the whole field of education in the past 10 years. We must, however, not swing too far and get ourselves into the position of those educators who regard habit formation as the be-all and end-all of health education. It is essential, but it is not enough. We must teach the child to see that the habits formed are in conformity with fundamental laws which govern the human machine and will inspire his development of new health habits in the future. The teaching of geography to the child must mean more than merely knowing his way to school. The new concept of education lends itself easily however to the practical use to be made of theoretical teachings. Let the pupil take an intelligent share in watching the thermometer, in controlling the radiation, in opening the windows, and in charting the results. If you thus give the control of the room ventilation into the hands of the children themselves and discuss with them the principles involved, you will give them an insight into some of the fundamental laws of physics, in correlation with the practical demonstration of them. Instead of the classic experiment of the mouse in the bell jar, you will open up for them the whole problem of heat regulation. This explanation of the human body as a thermal machine carries you back to the relation of food to calories and nutrition work and the utilization of food in the body and the way, in which heat is given off from the body with its marvellous system of circulation.

If the pupils' aid is thus enlisted, the teacher has a unique opportunity to teach physics and physiology and the result will be that the teacher and the child between them will control the schoolroom ventilation in a manner to permit comfort and reduce respiratory disease. The children automatically learn some of the most important lessons which they need to learn to govern their lives in the future.

I would like to add one word more which is generally applicable to teachers present here, and that is that in the general work of education there are three branches: research, teaching, and practice. In this work on ventilation these may be united to an unusual degree. The elementary teacher generally has no opportunity to do anything in the line of research, but there is an opportunity in this field to contribute to the general advancement of knowledge.

We are forced in the general promulgation of these new theories of ventilation (that is new, in the sense that they are only 25 years old, instead of 50 years old) to meet the opposition of the heating and ventilating engineers, who as a body cling to the old time "dilution theory" of ventilation, that is, the idea that poisonous air must be diluted with fresh air. It is a tendency of the human mind that the followers of a theory cling tenaciously to it even when it is abandoned by its creators.

Many engineers still hold the idea that mechanical means are essential for good ventilation and that only the janitor, and not the teacher and pupils, can maintain healthful and comfortable conditions in the school-room. The plans of school boards and physicists are held in check by the engineering profession and by the obsolete type of legislation which they have caused to be inaugurated.

The answer to this opposition is to be found not in refined and elaborate ventilating studies in the laboratory, but in carefully controlled observations in the field. The answer to this opposition of the heating and ventilating engineers is to be found in the intelligent operation of window ventilation, the recording of the resultant air conditions maintained, the collection of data as to the comfort of the occupants, and, as a final word, the recording of the health of the children under these conditions.

We should make a united effort to try out these conditions of window ventilation in as many schools as possible; to block off the fan ventilating ducts; to use ceiling ducts as exhausts; to install slanting window boards; to utilize this system, to watch it, to show that teachers can operate it; and by intelligent coöperation between teacher and pupils to show that better ventilation can be secured than by the control of a distant janitor. We shall then be able to show on a large scale what has already been worked out by the New York State Commission on Ventilation, that with window ventilation the child is happier and more efficient and more free from colds and respiratory disease.

Last week a Central Conference Committee on School Ventilation was organized by members of the American Association of Heating and Ventilating Engineers with representatives of the New York State Commission, the American Medical Association, the National Education Association and the American Public Health Association. The attitude of the leaders of the Heating Engineers was most cordial in their desire to find a solution of the difficulties which have separated their interests from ours. This committee proposes to deal with the difficulties involved in the subject of school ventilation; to find where disagreement persists and to see what sort of evidence is needed to enable them to come to an agreement.

Rational men, with scientific training, should find a way, with the information they have at hand, to solve these difficulties; and I feel that the information in regard to the actual operation of window ventilation obtained by teachers and school nurses represented in this audience will bear results in successfully persuading authorities to test out these new methods, and to keep records as to the results obtained in the intelligent management of schoolroom ventilation.

The advantages of this work will be seen in more complete attendance, in greater comfort, and in better health and in added knowledge, by giving the children themselves a fundamental conception of the physiology and hygiene of ventilation. If we achieve this we shall make a fundamental contribution to the child health of the country as a whole.

SCHOOL SANITATION FROM THE STANDPOINT OF THE SCHOOL ADMINISTRATOR

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THERE ARE at least three large outstanding needs to be met in the administration of a program of school sanitation. These needs are: first, a program that has been developed and tested on a strictly scientific basis; second, a type of school organization and control that makes possible successful and efficient results with the total school population in the entire area concerned; and third, an adequate system of school revenues that makes possible the financing of a complete and equal program for all school children.

A STRICTLY SCIENTIFIC PROGRAM OF SCHOOL SANITATION— THE FIRST GREAT NEED

The problem of the program of school sanitation is first of all a problem of research. At the present time the popular and generally supposed desirable program for the sanitation of school buildings and health of school children includes elements which not only have no scientific basis but which have been proved to be often positively injurious to health. Present standards of school ventilation furnish abundant proof of the statement.

Dr. Winslow has presented the modern scientific conception of ventilation. He has clearly demonstrated that the theory of ventilation underlying the present standard of 30 cubic feet of fresh air per minute per pupil, not only was never justified but that it is now thoroughly discredited by a preponderance of evidence.

Present standards of school ventilation are based upon the supposed existence of poisonous or injurious substances in the exhaled air of occupied rooms. Consequently school ventilation has become a problem of moving the air out of classrooms, or diluting it by forcing in fresh air at a commonly agreed rate of 30 cubic feet per minute per pupil. Such a standard can be attained only by mechanical means; hence the installation of plenum and exhaust fans and the gradually increasing multiplicity of mechanical ventilation devices and apparatus extending all the way from the basement to the roof.

Mechanical ventilation with its standard of 30 cubic feet of air per minute per pupil has been urged and forced upon schools as a positive means of safeguarding and improving the health of school children. However, present scientific knowledge, repeatedly confirmed since the work of Hermans in 1883 down to the findings of Winslow, Palmer, Lee and others, shows that standards of classroom ventilation should be based primarily on temperature and other physical properties of air. The shift in the center of gravity, so to speak, of the problem of ventilation was cogently expressed twelve years ago by Dr. Lee, as follows, "The physiological problems of ordinary ventilation have ceased to be chemical and pulmonary, and have become physical and cutaneous."

In view of the present situation and inasmuch as the ventilation of school buildings is one of the major problems confronting school administration in the attempt to provide a comfortable and healthful environment for school children, you are requested to follow through a brief review of some aspects of the present status of mechanical ventilation.

SOME ASPECTS OF THE PRESENT STATUS OF MECHANICAL VENTILATION

Practically half of the states* have adopted the standard of 30 cubic feet of air per minute per pupil. In some states, this has been done by legislative act and in others by regulations having the force of law. These states, with certain specified exceptions, require the installation of a system of ventilation capable of delivering 30 cubic feet of air per minute per pupil. It is startling but nevertheless it is a fact that, in spite of 40 years of accumulated knowledge and especially 15 or 20 years of overwhelmingly convincing evidence, approximately 12 millions of public elementary and secondary school pupils attend school every day in states having these archaic laws and regulations on school ventilation. This number represents more than half of all the pupils in the public elementary and high schools of the United States.

The New York State Commission on Ventilation and others have subjected present standards of ventilation as exemplified by modern systems of mechanical ventilation to various scientific tests. The verdict that has been given is against mechanical ventilation and in favor of modified window ventilation. There are certain rigid tests which the school administrator can and should apply to mechanical ventilation. Considering the length of time during which the installation of mechanical ventilation has been required by law and the ample time it has had to

* McLure, John R. *The Ventilation of School Buildings*. Bureau of Publications, Columbia University, Teachers College, New York City, 1924.

demonstrate its value and usefulness, it is fair to apply the test—"How has it worked?"

Bearing in mind that the standard of 30 cubic feet of air per minute per pupil requires mechanical ventilation, it has been found that in some states the law does not apply to rural schools; in other states, the law does not apply to one-story school buildings, and in other states the law does not apply to small school buildings having up to six rooms. Now the fact is that crowded schoolroom conditions may exist in a rural school, or in a one-story school building, or even in a small school. It is a question, then, why children attending these types of schools should be excluded from the supposed safeguards of these laws and regulations. Also it is true that in states having these laws and regulations, systems of ventilation may be installed which can meet the legal requirements so infrequently and intermittently that the system may be disregarded altogether so far as delivering 30 cubic feet of air is concerned.

In addition to these things it is also found that so-called compulsory ventilation laws are so administered that the element of compulsion when it does apply, applies only to the installation of ventilation systems. We have compulsory installation but no compulsory operation.

If the dangers of exhaled air in occupied rooms had proved in practice to be anything like as great as the advocates of mechanical ventilation have claimed, we would not expect to find such glaring omissions and inconsistencies in these ventilation laws and regulations.

One fact, however, stands out boldly in a survey of school ventilation. It is that the installation of mechanical ventilation is now a thoroughly established practice in the cities of states having these laws and regulations. Systems of mechanical ventilation are being installed also in school buildings in a large number of cities not situated in the states which have the usual legal requirements.

In general, the cities of the United States are firmly in the grip of an obsolete standard of school ventilation so far as the installation of mechanical equipment is concerned. Something of the magnitude of the situation is indicated by the fact that more than 6 million children attended school in 1920 in the cities of states which require 30 cubic feet of air per minute per pupil.

In view of the fact that millions of school children in America have been provided with mechanical ventilation equipment, it is pertinent to inquire to what extent these ventilating systems are actually operated. It has already been pointed out that the so-called compulsory ventilation laws, when they do compel, compel only the installation of equipment and not the use of it. Therefore the extent to which systems of mechanical ventilation are actually operated is a good measure of the estimate

which is placed upon mechanical ventilation by those who have had experience with it and who are supposed to benefit by it.

In a recent study (referred to on page 81) it was found that it is almost a universal practice never to operate these systems regularly and continuously throughout the school year. Very few cities even claimed to operate these ventilating systems beyond the heating season, when windows can be opened. According to the theory underlying mechanical ventilation, the supposed need of 30 cubic feet of air per minute per pupil would exist during the non-heating as well as the heating season. According to the theory it would be as necessary to remove foul and vitiated air from classrooms in May as in December. But the test of use is not yet fully applied. It has been found that even during the heating season, the typical mechanical ventilation system is not operated, as a rule, except on days when the outside temperature is low and the regular heating system cannot furnish sufficient heat for the classrooms. Under these conditions the ventilation system is operated in order to supply the necessary additional amount of heat.

Evidence gathered on operating policy shows that systems of mechanical ventilation, when they are operated, are operated primarily for heating purposes and not for ventilation. In a certain real sense, then, instead of having mechanical ventilation we have auxiliary heating. It appears that mechanical ventilation in the schoolroom is largely an engineering fiction.

The status of mechanical ventilation, as revealed by this same study of schoolroom ventilation, is more appalling still. In a majority of typical mechanical ventilation systems in new school buildings sufficient direct radiation is placed in classrooms to maintain the required temperature without the use of the ventilation system. In these instances it is safe to conclude that the installation of mechanical ventilation is largely to satisfy the law or tradition and that there is no intention to operate the system after it is installed. Some of those in charge have been frank enough to say that this is true. This seemed to be the situation in New York City.

Investigation showed that practically all buildings at Columbia University were equipped with the typical system of mechanical ventilation. Observation and official information was that not a single one of these plenum basement fans ever turned during the whole year. The same situation seemed to exist in the public school system of New York City. The large plenum fans and accessory apparatus were found to be idle.

The cost of the heating and ventilating contract of a typical new school building in New York City was analyzed. The heating and ventilating contract amounted to \$137,939.00. Of this amount the ven-

tilation system alone cost at least \$55,000.00. In one school building, then, we see that \$55,000.00 was practically thrown away by this policy of non-operation. In this way, during the short period of 17 months it was estimated that New York City wasted practically \$1,500,000 on ventilation equipment for new school building.

Compliance with ventilation laws and regulations now discredited by scientific research is costing taxpayers, chiefly in our cities and towns, millions of dollars annually. Millions of dollars from bond issues and tax levies for school building programs have been translated into idle, semi-idle and useless mechanical ventilation devices and paraphernalia. The conclusion is inevitable. Mechanical ventilation has not worked.

In the past, societies of heating and ventilating engineers energetically advocated the standard of 30 cubic feet of air per minute per pupil and sought to have this standard embodied in the laws and regulations of states. Doubtless they were aided by other well meaning agencies, especially up to 10 or 15 years ago.

At the present time the American Society of Heating and Ventilating Engineers maintains a research laboratory. The literature and proceedings of this society clearly show that one of the aims in maintaining this laboratory is to discover and prescribe the air conditions which are most conducive to comfort and health. A concrete illustration is the society's 1924 preliminary draft of a "Code of Minimum Requirements for the Heating and Ventilation of Buildings." The proposed code was drafted with a view to its various sections being adopted into the laws and building codes of states and cities. It is interesting to know that this preliminary draft did not declare boldly for the old standard of 30 cubic feet of air, but, on the other hand, it incorporated a "Synthetic Air Chart." The significant thing about this "Synthetic Air Chart" is that it proposes standards not only in terms of temperature, humidity, and air motion, but also in terms of dust, bacteria, odors, and carbon dioxide. Thus an engineering organization expects to tell the public what are the desirable conditions for the health of school children, while basing their standards upon several factors discredited by decades of research.

In defending mechanical ventilation in connection with the procedure just described, a dean of an engineering school, who is also a directing head of this research laboratory, rejects the conclusions of the American Public Health Association and prophesies that engineering research will yet find more definite proofs of some of the physiological problems connected with ventilation. He is quoted in the *Heating and Ventilating Magazine* of April, 1926, as follows: "Some day, we will prove more definitely just how many air changes are desirable."

The question may well be asked: Is it for the public good that heat-

ing and ventilating engineers now take over functions hitherto left by common consent to eminent sanitarians and authorities on health?

School administration will welcome new information regarding the problem of ventilation from any research agency. However, it must be stated here and emphatically reiterated that the school administrator must look for guidance to the research activities of authorities in public health and allied fields and to the conclusions arrived at by responsible medical societies and health associations.

When it comes to a choice between a standard of health proposed by the ventilating engineer on the one hand, and the public health authority on the other, the public health authority must be followed.

The evidence from all sources justifies the following conclusions:

First, school administrators should coöperate in the movement to secure the repeal of laws and regulations requiring 30 cubic feet of air per minute per pupil.

Second, the most desirable method of safeguarding and promoting the health of school children in respect to the sanitation of school buildings is to confer final authority for approving all plans and specifications upon the state board of education, or the state superintendent of public instruction. A good illustration of a desirable law will be found in the school code of Maryland.

Third, school administrators now engaged in planning school building programs should give serious consideration to the general method of schoolroom ventilation, recommended by the American Public Health Association. The method is that of ventilating schoolrooms "by fresh untreated outdoor air, admitted at the windows with gravity exhaust ducts for removing vitiated air from near the ceiling."

Fourth, superintendents in cities now under present laws and regulations should, if possible, seek some special arrangement whereby at least one typical new school can be equipped with window gravity ventilation for test and demonstration purposes.

THE EDUCATIONAL VALUE OF SANITARY AND HEALTH EQUIPMENT OF SCHOOLS

Before closing this discussion on school ventilation it will be exceedingly worth while to examine at least two specific criticisms raised by ventilating engineers against the window-gravity method of ventilation.

First, it is claimed that window-gravity ventilation will not keep down odors. In making this criticism the advocates of mechanical ventilation do not take into consideration the modern health programs of public education which emphasize healthy living through the practice of good health habits including the bath. The elimination of odors is a problem

in the teaching of personal hygiene. An investment in a well planned system of shower baths will be more efficacious and exceedingly more educative than the installation of plenum fans.

Second, it is claimed that the teachers cannot be relied upon to open and regulate the windows properly. They will become too busy, it is said, and neglect the ventilation of the room. The view of some engineers that ventilation should be controlled from the basement and must be made a matter of no concern whatever to occupants of the classroom is at variance with the modern conception of classroom activity. The classroom, with teacher and pupils working together, represents a social situation which admits of pupil responsibility and pupil participation in matters affecting their comfort and well-being. In this kind of situation, ventilation needs may be brought to the attention of the "busy" teacher by some of the pupils or, indeed, pupils designated for the purpose may regulate the windows themselves. In making this criticism, the advocates of mechanical ventilation have not given due consideration to the principles and philosophy underlying modern schoolroom activity.

Enough has been said to suggest the desirability of utilizing the sanitary and health equipment of the school as agencies for encouraging good health habits and practices. It is bad psychology and poor educational leadership to plan, equip, or operate a school building in such a way that the pupils will be oblivious to the things that are being done for their comfort and health. The educational values of various situations presented in a modern school building are almost unlimited. Consider the possibilities wrapped up in the provisions for, and the activities going on in connection with the cleaning of the building, drinking, bathing, toilet facilities, heating and ventilation, lunch rooms, playgrounds and all other services and provisions for the health of school children. The wise school administrator and the curriculum makers of the school system will seek to get these things over into the daily lives of pupils and the only effective way is to make the whole activity of the school, as near as possible, a joint enterprise between pupils and school.

The organization of a school toward the proper utilization of all school health agencies and equipment may be counted upon to go a long way toward remaking the attitude of the community toward health. Cases are on record where such a simple beginning as the installation of sanitary drinking fountains to replace water buckets and dippers caused a series of forward steps which culminated in the establishment of a thoroughly organized and adequately financed county health unit. Such results cannot be secured, as a rule, when installation of equipment and inauguration of services are allowed to be taken as a matter of course either by the school or community. At each step of the way

there must go along an active plan of education for the proper utilization and understanding of the services provided.

A DESIRABLE TYPE OF SCHOOL ORGANIZATION AND CONTROL—
THE SECOND GREAT NEED

We not only must have standards scientifically and educationally sound, but we must have a type of school organization and control that will make possible the elimination of the one-teacher rural school and other small school centers as rapidly as conditions will permit.

Cities as a rule have a desirable type of school organization and control. As long as education for rural children is organized on the small school district basis, usually accompanied by small and inadequate buildings and grounds, it will be almost impossible to provide standard sanitary service systems and other necessary equipment for the health of these children, to say nothing of the difficulties of providing for proper supervision and coördination of activities. The number of states in which education is organized on the small school district basis has recently been placed at nineteen. When the county, or other large unit, has been substituted for the small district unit, material progress can be made.

AN ADEQUATE SYSTEM OF SCHOOL REVENUES—
THE THIRD GREAT NEED

In conclusion, it must be borne in mind that even with standards scientifically and educationally sound and a desirable type of school organization and control, it will still be impossible to finance the program so that it will be available to all children even to a reasonable degree, without an adequate system of school revenues. More and more these revenues must come from state rather than local taxes. There are poor school districts and counties in many states which are unable to finance a minimum program from local revenues. Under present revenue systems and methods of apportioning school funds, there are many districts and counties which cannot provide even the beginnings of minimum requirements for school sanitation and health.

We have dedicated ourselves in America to the great ideal of giving to every boy and every girl "a fair start and an equal chance in the race of life." It is for us to begin this great task with the thing of most fundamental importance and guarantee to every boy and girl a healthful school environment and, as near as possible, a strong and healthy body. In order to accomplish this we must first of all discharge our obligations as citizens before we can utilize properly our knowledge and skill as health workers, for the problem finally becomes one of constructive statesmanship.

LUNCH ROOM FACILITIES AND THEIR EDUCATIONAL USE

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IT IS conclusively established by our most conservative scientists that of all the factors contributing to health, food contributes the most, because it is essential for life—for health—for efficiency—and for power.

Dr. Sherman, writing in the *Red Cross Courier*, February 2, 1925, on the "Relation of Nutrition to Health," says: "A wise use of food is doubtless the largest factor in the problem of the attainment of the highest degree of health through superior nutrition; and just as the artist must 'mix his colors with brains,' and as 'the eye of the master fattens his cattle,' so a well trained nutrition worker, as well as a good food supply, is essential to the best results in a nutrition-for-health campaign. And good nutrition teaching will bear fruit in superior health, both in the present and in the future.

"We need not expect through improved nutrition to produce human beings physically superior to the 'plan and specifications which heredity has laid down.' What we may confidently expect is that a better and broader application of our present knowledge of food and nutrition will help greatly in the attainment of the best that heredity permits and thus bring to a much larger proportion of our people that full measure of health and vigor which only the more fortunate now enjoy."

Dr. Seall Harris, a former president of the Southern Medical Association, in his address to that body, said: "It should be drilled into the minds of laymen that the properly nourished individual rarely develops tuberculosis, pellagra, or other similar diseases. The well nourished man, woman, or child is also less susceptible to the acute infections like influenza, pneumonia, and typhoid fever. When all the people of the United States understand the known facts regarding diet and nutrition and live accordingly, many of the present public health problems will be solved. Tuberculosis will become a rare condition and there will be a remarkable reduction in all the other germ diseases, as well as in the chronic diseases of the digestive system, of the blood vessels, and kidneys.

"I believe that 25 years or more can be added to the average life of

the coming generation, if parents will spend a few hours in learning and in teaching their children a few simple facts regarding diet and nutrition. Not only that, if the adults of the present generation will put into practice the knowledge of food values and vitamins that is available to them, they can greatly increase their efficiency and at the same time add years to their lives."

Scientists, preëminent in their field, have demonstrated and are doing so every day with thousands of laboratory animals that growth and longevity, as well as the prevention of certain deficiency diseases (including pellagra) and deterioration of the stock are directly attributable to an adequate dietary.

Cramer, in the London *Lancet* of March 20, 1924, says, "In fact there is considerable evidence that defective nutrition has remote effects with cumulative action through successive generations so that the physical condition of the stock becomes progressively worse." Sherman and McCollum have both shown that old age may be deferred by means of a well balanced diet. Sherman has also shown that experiments carried on through successive generations with laboratory animals given a diet already adequate may be so improved as to produce even a "higher degree of health and vigor." This improvement was brought about by increasing the proportion of milk, and made still more effective by the addition of a fresh green vegetable.

Very high commendation is due to the enthusiasts of the other health factors such as sunlight, fresh air, cleanliness, exercise, rest, sleep, removal of malformations, infections and others; yet not a single one of these or all of them combined can meet the bodily requirements fulfilled by a well assorted dietary.

The twenty minutes allotted to me prevent the citation of further reasearches proving that of all the health factors, food is the most important. Therefore, in the light of what has been conclusively proved by various scientists through experimentation with thousands of laboratory animals, concerning the nutritional value of a proper food supply, one need not hesitate to say, despite the fine accomplishments of and great need for school health inspection, that the main artery contributing to school health, namely, food education possible to all the children through the school lunch, has been almost completely overlooked or ignored.

Undoubtedly, this situation is due to a number of reasons. First, to lack of interest owing to ignorance on the part of those higher up concerning the value of food education and second, to the American's great desire to make money. Cafeterias must not only maintain themselves, but they must make enough money to pay for all repairs, replacements,

upkeep, and salaries. Then further, they are too often in the hands of the untrained and illiterate.

Recently, a striking example of such a situation was observed in a city, supposedly progressive educationally. Here the cafeteria director was a person who had not gone much beyond the fourth grade in school. She and her assistants prepared well cooked foods mostly of the American type, namely, meat, potatoes, white bread, gravy, candy, ice cream, and pie, and served it in a well kept sunny room. One watched with the utmost consternation the lines of boys and girls file by, carrying plates heaped with generous servings of meat, potatoes, bread, in addition to pie a-la-mode. Cooked vegetables were almost entirely ignored and the few salads arranged on the counter were completely overlooked. Behind a few bottles of milk stood in the most natural manner rows of bottles of pop. To my amazement, these vanished almost immediately, leaving the milk bottles looking forlorn and ashamed. Chocolate covered doughnuts immersed in servings of ice cream formed the entire luncheon of many a child. Large quantities of fudge had been prepared and this disappeared almost as soon as it made its debut.

Of the 1500 boys and girls observed in this cafeteria, few understood the meaning of proper food selection. The overweights invariably selected the starches and the sugars, while pop seemed to hypnotize the underweights.

In another high school cafeteria, miles away from the one just described, and presided over by a trained worker, conditions were just as bad, if not worse. The cafeteria director's hands were tied because the school board demanded that the cafeteria make money to be used in assisting other cafeterias which were not self maintaining. In this school, I saw boys select for their luncheon potatoes, spaghetti, biscuits and dry pie. Almost tearfully, the director explained that food education was not wanted in that school.

Cafeteria proceeds are used for all sorts of things ranging from physical education equipment to maintaining health clinics. Yet its own contributions to the health education of the school are too often completely disregarded.

Despite this oversight and neglect the school cafeteria, if directed by a scientifically trained person, and supported by school officials and faculty, may become the greatest health educational laboratory in the whole school system.

This is not a fantastic dream for it has been realized in a number of places. But it requires first, splendid organization; second, concerted coöperation from the highest to the lowest school official and faculty members; and third, the ability to secure from school children

participation in sound nutrition. Such an undertaking calls for managerial strength and the power to interest children, through graphic illustrations, in health factors of vital concern to them—a task more complicated than it appears, for most children would “rather eat what they would rather.” Special training in “selling successfully food facts” or “Food Makes the Difference” is particularly needed.

Charts, posters and photographs all are useful and effective in this undertaking but it may be necessary to resort to the biological method of teaching food facts.

A number of schools in Texas aroused the interest of their entire communities through animal experiments conducted by the high school home economics students in showing that food does make a difference.

The object of the experiment was to impress upon the children in the grades the effect that candy, coffee, coca-cola, chili and milk have on the growth and general well-being of the animals. These experiments succeeded in enlisting the interests of whole communities and this interest was typified by the increasing attention given by the press. At first, there were only little runners without headings in the papers, stating that such work was being done. Next came a heading in the ordinary type, and finally the announcement stretched across the entire page in a bold-faced type, with big headlines and cartoons. Although spectacular advertising was given to this project, the objective was realized for it not only reached the children but the parents as well.

School Life, the official publication of the Bureau of Education, in the November, 1925, number, gives an excellent description of a well-organized and well-conducted high school lunch room. In this lunch room not only is intelligent food selection for health stressed but daily appeals are made to the children's intelligence and their sense of responsibility. Through this appeal, the lunch room authorities have stimulated in the children thoughtful and unselfish behavior. This type of deportment on the part of boys and girls has resulted in an economic asset to the school and community in the saving of valuable school time and preventing useless breakage which so often accompanies disorder. A school cafeteria should not only be regarded as the health center of the school but the social behavior laboratory as well.

Opportunities for the expression of proper health habits, personal hygiene, good conduct toward your neighbors and the larger group, self-control, unselfishness, promptness, and thoughtfulness are not afforded by any other school agency to the extent that can be found in the school cafeteria.

This statement is supported by the cafeteria director of the Frank Ashley Day Junior High School, of Newtonville, Massachusetts, who

says their lunch room provides a splendid opportunity to develop some of the real objectives of education by the training it gives in the following:

1. Health and physical development through its development of everyday hygiene, both personal and public. (a) By itself working for the public health in its method of handling the food and sterilizing the dishes and silver. (b) By its training in the appreciation of the part right food plays in its relation to health. (c) By trying to create an appreciation of good table manners and a wholesome atmosphere.

2. By giving training in worthy citizenship, community, state and nation, through the functioning of the student patrol and student helpers.

3. By giving many opportunities for training in ethical character by giving student patrol real opportunity to function and the student body an opportunity to develop.

Does it not seem if any school agency can make such valuable contributions to the goal of education, that it ought to be brought to the surface and at least serenaded with a bit of God's sunshine and surrounded with an atmosphere of cleanliness, fresh air, and good cheer? Dark, musty, ill-smelling basement lunch rooms are decreasing. This problem should have equal recognition along with a safe water supply and sewage disposal.

In the new school buildings the cafeterias are often found on the top floor, many times due to the vigilance of a home economics worker who is on her job.

Further, no school board would expect to make money from selling books to the children, or from any other school activity. No other school employe earns the money to paint, varnish, scrub, repair, and replace the school equipment or furnishings. The lunch room director might do a certain amount. Certainly the food should pay for itself and a certain degree of the upkeep—but there is reason in all matters.

If the school lunch room is capable of contributing to the foremost objective in education, then is it not worthy of the combined support of all of us?—for, here is a tangible, valuable, school agency not to be exploited, but activated into a conspicuous place in any school health education program or campaign, so that we can actually put into practice what Disraeli preached, namely, "The public health is the foundation upon which reposes the happiness of the people and the strength of the nation. The care of the public health is the first duty of a statesman."

PLAY SPACES AS HEALTH EDUCATION EQUIPMENT

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PLAY SPACE, in the youth of the generation now passing into old age, was plentiful. Whatever was at fault in the play life of the older generation was not due to lack of space. Play went on as before and always because of the everlasting natural urge and dynamic drive to action in child nature; and child nature, tradition and adult example set the forms of the play. Children played at home and they played in convenient community centers of their own selection. Children not only played, they also worked with their parents and the play and work were a great source of development and therefore of health.

But times change. Since the childhood of this older generation, social changes due to an evolving machine controlled industrial civilization began to squeeze the educational juice out of child life. Our industrial civilization was built to fatten the pocketbook without any consideration of its effects on children's natural activities. Yet activity is the sole means of education and the development of power. Our machine organized industrial civilization destroyed the old home; it changed family customs even in the country; it squeezed the educational activities out of the home; it built congested cities; and in these cities it eliminated spaces in which children could play and thus gain normal development and social experience. Between 1860 and 1900 the results of these influences accumulated until child life as expressed in outdoor vigorous play broke down. Surveys showed that instead of playing, children were loafers or they were engaged in worthless amusements. In addition they had no hard developmental work. The social changes had destroyed the home and community opportunity for work as well as play. Children were more dependent on developmental play than ever before in the history of the human race. Play was more important; it was less general.

This general sociological status of play aroused sensitive teachers and social workers to action. In 1906, through the organization of the Playground and Recreation Association of America, a systematic reconstruction of the play life of children began. The old community play

space—any place where children got together to play—now became a social institution, an adult organized community playground, the mere initial cost of which was hundreds, thousands, even millions of dollars. The old spontaneous “free” play of the yard or “vacant lot” now became a recognized educational activity in a recognized social institution. Experience quickly established the ideal of the playground as a community center for play under the direction of a trained adult leader or playground director. In fact the idea of the trained leader became just as important as that of the play space. Without the trained leader the leadership among the children became undemocratic or dangerous and the play center became a neighborhood nuisance.

The significant thing about this playground movement is that it was adult-conceived, adult-promoted, adult-financed, adult-organized, and adult-managed. In a word, adults deliberately and with intention assumed the responsibility for an efficient organization of children’s play and made it a responsibility of the community.

Thus in the social establishment called the playground, there are two ideas: (1) the opportunity for all the children of the community to engage in the activities characteristic of the community play space or playground and (2) the adult director to organize and lead the large numbers of children concentrated on a community playground so the activities will be valuable. The purpose of both the opportunity and the adult leadership is to facilitate play as a fundamental educational activity. It is the activity that achieves the results desired by adults in organizing the playground. To the child a play space is any place where he can exercise his growing human nature and get satisfaction in the process. It may be in the gutter or alley and the activities may be antisocial and destructive of health. The adult-organized playground offers the larger opportunity for wholesome play. It symbolizes the opportunities for the racially old forms of physical education activities. These activities include the stunts on the apparatus as substitutes for the old natural equipment of the environment, the chasing and fleeing games of the open spaces, the rhythmical activities or dancing on grass, platform or floor, the competitive running and jumping or track and field athletics, the swimming in the tile-lined reincarnation of the “old swimming hole,” the hikes and outings extended from the playground as an organizing center, and so forth. These are the natural big muscle or whole-body physical education activities of the playground that arise out of the drive of child nature.

But the playground as a larger opportunity for most children is still a dream. Millions of children are playing on the streets or nowhere and without supervision. They will continue to play under cramping

conditions until a still more general adult conscience is developed. On public opinion rests the issue.

For those interested in health, the question becomes: (1) What are the values of the activities of the play space or playground and adult leadership for health, and then (2) What are the criteria of adult responsibilities in establishing play spaces and in organizing adult leadership in order that the values of play for health may be achieved?

For brevity, all the complex activities of the playground will be referred to as "play" or big muscle play to distinguish them from other forms of play; and the term "child" will be used to designate the whole period from infancy to maturity.

The values of play for health must be considered from two points of view: play as the developmental source of health; and play as a means of teaching health.

The first point of view is that play is the developmental source of health. Play is a developmental activity. It is the primary source of developed power. It is nature's method of education. The values of this primary developmental activity for health are inherent in the activity. If the activity goes on, the health results arise in the capacities exercised. The development of power for health is of three classes.

First, play develops organic and nervous power. Organic power means nutritive power, vigor, endurance, the ability to expend large amounts of energy with a slow onset of fatigue and a quick recovery from fatigue. It means power in the organic mechanisms; heart power, respiratory power, digestive power, heat regulating power, eliminating power. All these functions are exercised in vigorous big muscle play and the latent inherited resources of the organism are developed. In other kinds of play activities, for example, linguistic play, manual play and intellectual play, there are nutritive changes but they are local. In the big muscle play activities, the changes are total body changes and have a general organic developmental effect. No other activity of child life can compare with these vigorous play activities for the development of general organic power, and organic power is the basis of health.

Second, play is a developmental source of mental health. Big muscle play is the most generally interesting and the most dominantly social of all the activities of child life. In this play some of the deepest emotions of human nature are exercised in the social relationship. It is the most general source of the greatest satisfaction in the social relationships during childhood and youth. The activities are exciting and the satisfaction in the activities and the companionship develop emotional power for satisfaction and habits by satisfaction. These powers and habits are a significant source, perhaps the basic source, of mental health.

The individual who has experienced a rich play life during childhood and youth is apt to be emotionally sane during adult life. The individual who fails to have a joyous play experience in social relationships is sure to have some cogs missing in his emotional machinery.

Third, play is the developmental source of adult recreative habits in the use of leisure time. Recreative habits in the use of leisure time have profound significance for health.

For that great mass of people whose work is indoors, sedentary or confining, the outdoor recreative activities or the relatively vigorous plays and games are a health necessity. For that greater population whose social resources are limited, the play activities are the most enduring in wholesome, social satisfaction. The activities do not depend on erotic appeal. The spirit of them carries over into the quieter social companionship. The ideal of sportsmanship makes for sanity in social adjustments. All these recreative resources in adult life depend on the development during childhood of the ability to enter with ease and social satisfaction into vigorous outdoor social recreations requiring four kinds of power, viz: the organic power to expend large amounts of muscular energy with satisfaction, the skill to enter into the activities without irritation, the habitual emotional reactions that make for enthusiasm, the knowledge and skill to think fluently, the technic of the activities and their requirements as a hobby. Play is the developmental source of these powers and their health values.

Thus big muscle play is the developmental source of health, and the values for health are inherent in the activities. If adults provide the facilities and leadership so children have an adequate play life, the results are inevitable. They are characteristic of the activities.

To avoid misunderstanding of the phrase "developmental activity," it might be well to suggest that this discussion is not about "exercise" in the adult sense. Children never "exercise" in the adult sense. They play and play because of the "mental" satisfaction they get in the play. Play is nature's method of education and big muscle play is one of the primary divisions of educative and developmental activities.

The second point of view in considering the values of play for health is its significance as the basis for a method of teaching health.

This problem of teaching health is too complex to be more than touched upon in this brief paper. It is the most difficult and complex teaching problem in the whole field of education.

Health is a condition of the organism that is idealized as positive good health. The condition of health is largely a matter of individual behavior and health teaching in the school is concerned with behavior exclusively. The behavior is centered in practices or ways of carrying

on all the activities of life according to health laws. These practices are not separate activities from the ordinary activities of everyday life; they are merely standard ways of behaving. The problem of teaching health is the problem of teaching standards. Especially important are the standards in the group of activities that we may call "survival activities" to distinguish them from the play activities which have been considered. These survival activities include sleeping or resting, eating, elimination, heat regulation through clothing and housing, oxygenation by respiration and outdoor habits, and so forth. The proper ways of acting in these survival activities are the fundamental health practices.

Teaching health has as its objectives the establishment of health practices or habits; the establishment of interests and attitudes toward the practices; and the establishment of the ability to judge or estimate health activities. The practices give the health; the interests give the drive to the practices; and the judgment or intelligence is the guide of both interest and the practices.

Naturally the fundamental health practices are acquired by imitation in the home and community, and by coaching on the part of parents. But home teaching is limited by the intelligence and skill of parents and by the confusion and difficulties in dealing with children under present-day conditions of family life. Hence, health teaching is becoming a responsibility of the school in a new sense.

The school in teaching health is confronted with three difficulties. First, the school is limited in the number and kind of health practices that naturally go on in the school or that can be organized in the school. Second, most of the important health practices go on outside of the school, especially eating, sleeping, clothing, and so forth. They are not under the direct observation or control of the teacher; they cannot be supervised by the teacher. Third, health practices, generally speaking, do not give satisfaction, and satisfaction determines behavior.

These limitations and difficulties in teaching health in the school leave but one psychologically valid approach to the problem—if a serious effort is to be made to reach the activities and health practices out of school as well as in school. This approach is interest.

The basis in child nature for interest in health must be found so that children will engage in health practices on their own initiative. Such an interest is either inherent in the activity or in a purpose in some activity that makes related uninteresting activities or practices interesting. Health practices generally are not interesting. The purposes that make health practices interesting are derived from the interests and purposes in activities that are inherently interesting and drive themselves. These driving interests and purposes during child-

hood and youth are in play and in achievement in play, with all their social satisfactions. In adult life, they are in vocational and social achievement. When the significance of health and health practices for these primary purposes in life becomes conscious and convincing, there arises a spontaneous interest in keeping fit for the sake of the purposes in the activities. In a word, a secondary interest and purpose arises, the keep fit purpose. There must be sufficient interest and purpose in the primary activities to carry the burden of a lack of satisfaction in the health practices. This carrying interest is found most conspicuously in the big muscle play activities—the most fundamentally interesting of all the activities of child life. The problem of teaching health is first to develop the primary driving interest in life, and to the child play is life. With this primary interest we may develop the natural tendency to interest in keeping fit by relating the “keeping fit” interest to the primary interest in play. The practices are the means of keeping fit.

As play is the most dynamic general interest in child life and as it arouses interest in health and health practices, we have in the leadership of play, the most valid psychological basis for a method of teaching health that leads to self-driven health practices. It works and it gives results that last and continue on into adult life.

Most of the methods of teaching health in common use are superficial or unscientific. If they are superficial they will not get the results demanded by school conditions. If they are unscientific they will fail in the long run. What is sound in any of them is based on the psychology just outlined and either supplements or expands the basic procedures in connection with the play activities. Some supplement the interest; some expand the information.

The values of big muscle play activities for health lead to our second problem, viz: what are the criteria of adult responsibilities in seeing that the values of play for health are realized? The important criteria or guides are of two classes: those relating to the number and size of play spaces as opportunities for play; and those relating to the adult organizing leadership and teaching.

The necessity of providing trained adult leaders to organize and lead children's play may be presented briefly in a series of relatively obvious statements.

1. Children do not have the financial resources to secure the equipment for their own play.

2. The playground as a community center for play means that large numbers of children of different ages and abilities are concentrated in one place, hence the difficulties in the organization of the play are too

great for the children to succeed in organizing their play by themselves. Experience has shown that even college students when in large numbers, do not have the skill to organize their own play activities.

3. Children, when large numbers are brought together, must be classified for play according to age and ability.

4. A program of activities must be organized for the different groups that is adapted to the interests, strength, skill and needs of each group, and the organization of this program requires adult insight and technical skill.

5. Children of a given group must be kept in the space reserved for them, otherwise the older or more aggressive children will usurp the space of the younger and less aggressive children.

6. Safety and the avoidance of injury from accidents require adult organization of the playing groups and of the use of equipment. Avoidance of overindulgence and specialization on some one interesting activity also require adult direction.

7. The establishment of interest in a variety of valuable activities as a habit so the total amount and variety of activity necessary for development may be secured, requires trained leadership.

8. If character and moral consideration in addition to health were taken into account, the demands for expert adult leadership would be greatly expanded, as for example: Children of good moral habits and manners are brought together in the community playground with those of less desirable habits, and while the mixture is in itself a source of democratic experience, it is necessary for the character education of the children or even moral safety that they should be under able adult supervision.

9. Health interests, ideals and practices depend entirely on adult leadership.

The more difficult criteria of adult responsibilities relate to the number and size of playgrounds as community health equipment or as resources for developing power for health and for teaching health. What are the criteria in judging or planning adequate space for play? This problem is difficult in itself and in addition it reaches into the pocketbook of the taxpayer and rouses prejudice.

The number of play spaces or playgrounds necessary to meet the needs of children of different ages in a community may be dismissed with the formula that they are just as important as school buildings, even more so, hence the establishment of playgrounds should march abreast with or should parallel the establishment or reconstruction of school buildings. An adequate playground for all the children of the community of school age at least is an essential part of any modern school

plant. For children above school age, facilities in addition to the school playground are necessary; but the ramifications of this problem need not be considered here.

The size of the playground is a more technical problem because it requires an understanding of the needs of children. The old criterion of 25 square feet per child borrowed from the slums of London is totally inadequate. The size of the playground must be considered and determined by the functions of the playground as a community play center for all the children of the community in their social play activities. Further, the large amount of time naturally consumed in these activities to gain development compels us to demand a space that will accommodate if possible all the children of a school or a community in organized play at one time.

The scientific method of determining the size of a playground for any given school or community is to reduce the problem to units of space for unit numbers of children in specified activities in the spaces. With these unit spaces for unit numbers of children in one or all the activities of one age or all the ages of the school, the total space needed for any activity or any age or number can be accurately determined. The process is to divide the total number of children of the school or any group to be accommodated by the unit number of children of a unit space and multiply the result by the unit space. This gives the total space needed.

By such calculations we may gain valid criteria for the size of playgrounds. Thus for an elementary school of 500 the minimum requirement would be two and one-half acres, but an adequate provision would be ten acres. For a high school of 500 children the minimum requirement would be five acres, but an adequate provision would be twenty acres.

Such facilities will not be secured in many places soon, in some places never. In some places all the opportunities for play while at school will have to be concentrated to a gymnasium floor. But the values of play demand that scientifically valid criteria of play facilities shall be set up as a measure of adult responsibilities in providing adequate opportunities for the play life of children.

Ultimately adequate facilities are a financial problem dependent on school and community budgets. A higher realization of the need for the organization of children's play activities will have to come before proper budgets can be secured. But with the growing realization by parents and teachers of the significance of play for the development, health and character-discipline of children, there will be a public opinion

that will support the fulfillment of the responsibilities of adults in organizing child life.

To summarize, the "play space" is a community center where children and youth come together for big muscle social play activities; the "playground" is a social institution set up by adults as a center of opportunity for play under adult organizing leadership. The values of the activities of the playgrounds for health are of two kinds. They are the developmental source of health. They are the most generally effective basis for a school method of teaching self-driven health practices under the stimulus of a natural interest and of purposeful thinking. The values of the activities for health and the cramping influences of an adult industrial civilization create responsibilities for adults in the organization of play so its values may be realized. Adults are responsible for an adequate play space and equipment for all the children of the community so the total amount and variety of activity necessary for the development of power for health may be realized, and so the interest in the activity and development may be established as the carriers of interests in health practices. Adequate facilities and organization of the big muscle play activities are fundamental to a school health program.

AMERICAN CHILD HEALTH ASSOCIATION

TRANSACTIONS OF THE THIRD ANNUAL MEETING

ATLANTIC CITY, NEW JERSEY
MAY 17-22, 1926

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LESTER J. EVANS, M.D., *Director of Medical Service, Fargo Child Health Demonstration, The Commonwealth Fund Child Health Program, Fargo, North Dakota*

The Nurse's Way

FLORENCE H. M. EMORY, R.N., *Assistant Director, Department of Public Health Nursing, University of Toronto, Toronto, Ontario*

The Teacher's Way

ISABEL P. HAGGERTY, *Teacher, Public Schools, Passaic, New Jersey*

Team Work—The Physician, Nurse, Teacher, and Parents

ELNORA E. THOMSON, R.N., *Director, Nursing Service, Marion County Child Health Demonstration, Commonwealth Fund Child Health Program, Salem, Oregon*

How Public Health Nursing May Contribute to the Normal Development of the Child

WINIFRED RAND, R.N., *Merrill-Palmer School, Detroit, Michigan*

Getting Results in the Elementary School

JULIET BELL, *Director County Health Education Demonstration, Western State Normal School, Kalamazoo, Michigan*

Observations in Secondary Schools

EDNA BAILEY, Ph.D., *Supervisor of the Teaching of Science, University High School, Berkeley, California*

Unifying the School Health Program

DANIEL J. KELLY, *Superintendent of Schools, Binghamton, New York*

The Scientific Aspects of School Ventilation

C.-E. A. WINSLOW, Dr.P.H., *Professor of Public Health, Yale University, New Haven, Connecticut*

School Sanitation from the Standpoint of the School Administrator

JOHN R. McLURE, Ph.D., *Professor of Educational Administration, University of Alabama, University, Alabama*

Lunch Room Facilities and Their Educational Use

EMELINE S. WHITCOMB, *Specialist in Home Economics, United States Bureau of Education, Washington, D. C.*

Play Spaces as Health Education Equipment

CLARK W. HETHERINGTON, *Professor of Physical Education, School of Education, New York University, New York City*

PART IV

Community Health Organization

Plan for a City of 100,000; plan for a City of 50,000; plan for a County or District Health Organization.

These plans will include standards of health practice which have been adopted in the light of modern experience.

OUR GOAL—THE NORMAL CHILD

HERBERT HOOVER

President of the American Child Health Association

IT IS my pleasure as well as my duty to open the session of the American Child Health Association as part of the national conference on health. It is indeed a great event for us and our country when sixteen associations devoted to the promulgation of health meet in a united and joint congress on a nation-wide scale where a comprehensive review of the work will be an inspiration to us as it brings forth the vital service done for our country.

The American Child Health Association is dedicated to the service of children. Its field is the determination and promotion of safeguards for the health of children of the nation. Great as its sympathies are, its work is not primarily concerned with the unfortunate sick and deformed. So far as it reaches the individual child its job has been that of prevention. Our organization and our technical staff are endlessly discussing and constantly endeavoring to build up such surroundings as will secure the normal child. I hear a great deal of this normality. I should like to know what the normal is in children. Parents would like to know what it is. The nation needs to know what it is. So my purpose here to-day is to put it to this great gathering of men and women of technical learning and skill on these problems, that you find for us the standards by which we can know what a normal child is.

It seems somewhat of an anomaly, an arraignment of all our scientific endeavor, our beneficent intentions, that this standard of normal child is as yet an illusion, a fantasy into which it is necessary that we blow the breath of life, you with your scientific knowledge, your broad experience—I, as the layman, demanding that the normal child become a possibility.

If we only knew—it would give a new orientation to all these endeavors. It would transform our thinking from deficiencies to positive terms of an ideal—I do not say the perfect child, because I do not wish to ask the impracticable, but there must be some basis upon which parents, teachers and health authorities can check up the individual child, and see that it keeps normal.

As an incentive to parents, as a stimulus to communities, we need more pains in portraying the healthy child and the steps that contribute to this end so that all can understand. We want a degree of health

that is practically attainable. To be sure, we should like perfect children, but this may be asking too much. Tell us, if you will, what is the normal child, or better yet, the natural child.

I hope that normal implies the usual, but in all the sense it is here used it also implies something more than average. It is so far a nebular ideal. It no doubt changes with the years. The normal child of the year 1800 will not serve us to-day. Our standard of normality is on a higher plane. Define for us progressive normality, Twenty-first Century normality, that we may strive for this in the Twentieth Century. Picture to us in words, in crayon and in scientific fact the child that nature working at its best, intended. Describe to us in terms that fathers and mothers can understand the child whose organs are functioning efficiently, whose growth is proceeding unimpeded, whose senses are developed unhampered, and whose potentialities are being realized, mentally, morally and physically.

I cannot impress upon you too strongly the necessity of clarifying this goal of fruitful childhood upon which our hopes are so intensely centered. If our picture is only halfway health we shall not know how to strive for something better. Unless you make visual to us what is attainable, we cannot recognize our shortcomings in our national program.

It is time that we envisage this "normal" child, and it is time that we make that normal child a familiar figure in the homes of the country; that we make it clear to Mrs. Jones and Mrs. Smith how they can make their Mary and their John approximate the normal child that we are all talking about. It is all well enough to state and restate the safeguards which the community should have, to talk of the evident deficiencies in childhood. But there are millions of parents who are doing everything they know, and they are asking the question daily: Have I succeeded? Does my child conform to the ideal of the normal?

We surely have enough knowledge, enough science, if brought together, compared and sorted, to give us some standard of the normal child, or at least lead the way to him. The crux of the problem is, as quickly as possible to bring what knowledge we have into the open and to make it familiar to the average busy but deeply concerned parent.

During the 7 years of war and after the war I directed, on behalf of American charity, the care of nearly 10,000,000 different undernourished and waif European children. To some minor extent we were dealing with sick children, but in the main our problem was subnormal children, the toll of orphanage, famine and destitution. Our struggle was to rebuild these children up to an ideal of "normal." And we as

laymen insistently demanded from our technical advisers: "What is normal?" I still want to know.

In war time our advisers insisted that it was a complex and indeterminate question; and for war purposes and the practical problem in front of us, with no time for scientific determinations, our job was to battle up from the obvious subnormal. These facts are not sufficient for a country at peace. The multitude of cases with which we dealt in those times could be determined even by laymen. A stunted, rickety youngster, who had been one-third fed and that on roughage, barefoot and shivering in rags, is not hard to diagnose as cold, starved and subnormal. The remedy seemed to be food and clothes and coal. Our technical staffs then had to devote themselves to advising what was the kind and the minimum food and clothing that would give him a chance for life. They did discover many things as to the mass result of short nourishment and warmth. They discovered the special diseases to which children were subjected by shortages of fats or milk and they learned a hundred things of value.

They found also, a profoundly encouraging fact, that if the children were young enough they would recover strength and grow back to about their right size and health in an astonishingly few months of proper feeding and warmth, that in fact the young human is a hardy animal and has a predilection toward normal if he is given a chance. These masses of pitiable, silent, indolent, woe-begone youngsters would blossom out into playing, chattering, joyous, mischievous human dynamos with a few weeks of proper food and clothes.

During this time all of us on that job had often in the back of our minds the 20,000,000 "best beloved" in America. We envisaged them as always being normal. We foolishly believed it was only poverty, war and invasion that could bring vast masses of children to subnormal. We idealized American children as being flocks of strong, tousle-headed, dirty-fingered kids, occasionally breaking their bones in rollicking games or catching some current contagion, but otherwise under no duress. For all of this we thanked God that the 3,000 miles of the Atlantic Ocean had forever guaranteed them from invasion and famine.

One day in 1920, however, this illusion had a shock. In a publication of our draft figures it was coldly remarked that 80 per cent of the men of draft age were physically below normal; that one-third of them could not even pass the requirements of a country desperate to raise men for war. We were further told that 80 per cent of all the babies born in America were born perfect. We inquired, how comes all this in our country of fine climate and abundant food, of little poverty and great devotion to children? The technical people said it was due to

improper nourishment, impure food, neglect, lack of fresh air and of play, ignorance, contagious diseases, faulty mental complexes, and lack of medical attention to the little mishaps of life.

Thus it appeared that America also had a job of pulling up the subnormals on a nation-wide scale. It seemed to many of us that the momentous impulse of America to help world children might well be directed toward her own. Some of us offered our help to those devoted folk who with inadequate means and inadequate organization were struggling to bring these issues to public attention, and from these discussions arose the American Child Health Association. We have found support for the work of the Association to the extent of four or five hundred thousand dollars a year, and the Association has been steadily boring further into this problem for these 4 years. We have recently had a public demonstration of the work of the Association in its success of turning May Day through the whole nation into a day when the national conscience was searched as to this health of children. This was observed in every city and town of the United States. As a result of this searching we have had innumerable inquiries from parents as to how we test out to determine what is the normal child about whom you all talk.

The Association is engaged in a large field of coöperation with health authorities and educational institutions, and is in a score of ways steadily building a better understanding of the problem. It has completed a survey of 86 cities to determine what safeguards are actually being given to the health of children. The result has in it much that is disheartening but much that is encouraging. To find that some towns are alive to the problem and are vigorously moving along the road, is encouraging. To find that many are doing but little is saddening. It is worth while to pause a moment and review the results of the search.

No one disputes that milk is essential for children, yet of 35,000 fifth-grade children examined, nearly a quarter have no milk. A pint of milk a day is set by our specialists as the minimum, yet 42 per cent of these children had less than this. Only 8 of the cities surveyed pasteurized their milk. There were 18 preventable epidemics among children in these cities in a period of 4 years. A leading medical authority tells us that of the 10,000,000 children of preschool age in this country malnutrition exists in from 20 to 25 per cent. Postural defects occur in from 40 to 50 per cent. Dental defects are most common, from 60 to 70 per cent having caries to a greater or less extent.

This means that these children enter the doors of our schools handicapped liabilities instead of assets. All this is not depicting the ideal.

It is vital material with which to rattle the bones of unthinking and inadequately supported public officials and to awaken public action.

We need also the positive side—what the factors are which contribute to the development of the healthy body, the healthy mind, the healthy social organism, and we should have these factors stated in positive rather than in negative terms of safeguards. Unless we know the factors, we cannot intelligently strive to produce them. We await from the scientific world that formula which will enable all those who care for children and who seek a better era, to mould the boys and girls of to-day into stalwarts to whom we entrust our hopes of the future.

Standards are wanted, but not standardized children. The ideal child is the optimal child when all factors are balanced. These factors may be very different for different children. We want them different, because the greater the variety of good combinations, the richer will be the range of types, and the greater will be the contribution made to our national life. Just as the modern science of floriculture aims to produce the widest possible variety of beautiful types, so the science of health development of children should aim by freeing them from impediments to enable them to blossom, in the infinite variety which is characteristic of life.

Our ideal is not only a child free from disease, it is also a child made free to develop to the utmost his capacity for physical, social and mental health. This means freedom to grow, the modern idea of education. Since conditioned environment is essentially the basic feature of our best modern education programs, the conditioning of the child's environment from babyhood to adolescence, with respect to food, clothing, housing, fresh air, baths, exercise and rest, must be considered his elementary rights. But the development of standards safeguarding the child's health should be directed by the best scientific and educational authorities.

Equally important and interrelated with the physical needs, are the emotional needs of childhood, such as the need for wise love and understanding, for protection against such psychic blights as fear, and the abuse of primitive emotions such as anger. Only thus may we have a race of children free in spirit and strong enough to carry on the highest ideals of our civilization. Such education for constructive freedom necessitates homes and schools flooded with fresh air and sunlight, with ample play space, with serene and well qualified parents and teachers.

I sometimes hear the term "welfare work" applied to the work of such organizations as yours. If this term means what you and I know your work to be, then I allow the term. There is bound to be a certain

amount of uneconomic, unscientific dabbling in human woe which excites in some people the contemptuous use of the term "welfare work." While I know the futility of much of this kind of effort, yet even unscientific human kindness is still kindness, and through it the spiritual instinct of charity is worth preserving.

Our work is racial defense. If we want this civilization to march forward toward higher economic standards, to moral and spiritual ideals, it will march only on the feet of healthy children. The breeding ground of the gangster is the overcrowded tenement and subnormal childhood. The antidotes are light and air, food and organized play. The community nurse and the community safeguard to health will succeed far better than a thousand policemen in setting an ideal of the normal child and building up the nation's children to that ideal.

It is for our scientific advisers to set up a standard to which we can attain, and it is our part to support them with all the forces of our country.

HEALTH AID FOR THE PEOPLE ON THE FARM

R. W. DUNLAP

*Assistant Secretary, United States Department of Agriculture,
Washington, D. C.*

THIS is an age of programs—programs for everything. But that means that this is an age of social betterment. In bettering society no program is more worthy than that of promoting good health.

This organization and this meeting here to-day prove that there is a great band of people in this country who are aware of the fact that a nation is only as strong as its citizenry, and its citizens are only as strong as their physical bodies. Health, in other words, is one of the most important stones in the foundation of our nation and society generally. It is for such an all important reason that the United States Department of Agriculture, as well as other divisions of the government, has undertaken to promote the physical well-being of the people and more especially the people on the farm.

There has long been a question as to the comparative healthfulness of urban and rural living. Figures are quoted and illustrations made on both sides, and there are elements of truth in both. But whether the country is or is not as healthy a place to live as the city, the fact remains that there are still many instances of suffering and death from preventable diseases in every community; and as long as that is the case there is still room for the development of your program for better living conditions.

The facts of the case point to a more rapid improvement along hygienic lines in the cities than in the country. That was no doubt due to an earlier necessity for it there. Long ago when great cities began to bring multitudes of people into continual close proximity it was realized that contagion must be fought there first, and the idea of sanitation properly began in city communities. But there came a time in the recent past when people began to realize that the same safeguards which would keep disease from a congested community would also keep it from a sparsely settled one. Thus the idea spread, and to-day hygienics and sanitation are watchwords the land over, and the farmers are assuming their share of the duty toward making America a nation of physical safety for everyone.

The farmer's contribution to our national life must not be estimated

alone by the grain, the fibre, the meats and other products of the soil, which he provides, but there is another crop which he has produced regularly from the very beginning of our country's history and which is far more valuable, and that is the crop of children.

An article appeared in the *Century Magazine* a couple of years ago in which the farmer's child was said to be "the crop which makes the farmers of the future and insures the continuance of our food supply. The surplus of this crop above farm needs makes that steady stream of fresh, virile, potent blood which flows into the cities and is such an important contribution to the vital human forces of the nation."

Continuing to quote, "It appears from the census of 1920 that the rural communities are carrying about four million more boys and girls under 21 years of age than the towns and cities. Of the total farm population but 49.5 per cent are 21 years of age or older, while of the city population 62.5 per cent are 21 years of age and older." The farms, therefore, are growing, training, educating, and turning over to the cities at working age from 300,000 to 400,000 young folks each year. The character making years of these future citizens are spent on the farm. Physical qualities and mental and moral habits are largely formed there. Most of their education is acquired there. Hence the importance of conditions which will develop crops of children of the highest quality.

It is estimated that, to maintain our population at the present birth and death rate and with no immigration, there should be on hand all the time 460 children under 5 years of age for every thousand women of childbearing age, and that any growth must come from an excess of that number. In the better residence districts of the cities not enough children are born to maintain our present population and the increase is coming from the working districts of the cities and industrial centers and from the farms. In the better residence districts of the cities throughout the country the number of children under 5 years of age for each thousand native born women of childbearing age runs from about 260 to 350. In those wards in which the poorer classes live in the same cities, the number of children under 5 years of age runs from 450 to almost twice that number. Whenever the native Americans move to town or to states like California the number of children in proportion to women of childbearing age decreases. In California, for example, the number of children under 5 years of age to each thousand native American women of childbearing age is about 330, or approximately the same as in the better residence districts of the cities, and 130 less than needed to maintain our population. The increase in population is coming from foreign born and from native Americans who live on the farms. In Iowa there are 540 children under 5 years of age per thou-

sand women of childbearing age, or 80 more than necessary to maintain the population. In North Dakota the number is 690 and in Alabama it increases to 790.

The large increase in population is coming from the foreign born whether they live in the cities or in the country. In the eastern states there are 650 to 700 children under 5 years of age for each thousand foreign born women of childbearing age. In Iowa, Minnesota, Nebraska and neighboring states, the number of children reaches 900, while in North Dakota the foreign born women have 1240 children under 5 years of age per thousand women of childbearing age. From all of this it is evident that the farms of the Middle West are literally the breeding grounds of the nation. The farms of the United States produce every year from a third to a half million more children than are necessary to maintain the farm population. These extra hundred thousands are sent to the cities every year, and the people left behind on the farm must proceed to their double task of feeding the cities both food and new blood. This double task takes an appalling amount of human energy. The future of the cities of the United States seems eventually to lie in the quality of the blood sent them from the farms. The native born in the cities are not producing enough children to maintain themselves. They are being replaced by the children of foreign born parents and the children of the farms. Our greatest wealth is in the children of the next generation. The blood and education with which they are equipped determines in the long run whether our civilization is going up or down.

It is the job of the Department of Agriculture to see to it that the farmer be educated along every line necessary to his well-being. The matter of healthy rural children has prompted the issuing of several bulletins, some of which are: "Good Proportions in the Diet," "Food for Young Children," "School Lunches," "Milk and Its Uses in the Home," all intended to create a greater interest in rural homemakers for the betterment of their children physically.

The Bureau of Home Economics for some time has carried on the work of instruction by bulletins and traveling exhibits. We have a nutrition specialist who works jointly with the Bureau of Home Economics and the Office of Coöperative Extension Work, and who has devoted considerable time to the development of child health. Through her efforts, contact has been made with the American Child Health Association, and thus the good work of that organization is made available to the farmers.

The Bureau of Home Economics has also coöperated each year in the celebration of Child Health Week, conducted by the Bureau of Education of the Department of the Interior. The efforts of the Bureau of

Home Economics are usually in the form of news releases that aim to sell to the farmer the idea of child health and to encourage and solicit his coöperation in the program.

Then there is the home demonstration agent who makes the contact between the Department of Agriculture and the farmer's home. She is paid from a combination of federal, state and county funds, and her work is guided by county advisory councils thus insuring her activity along the most needed channels in the local community.

The necessity of pure drinking water is so important and so well known as to need no amplification here, but it does need considerable attention to bring to the minds of our farm population the dangers that lie in pollution of wells. The department experts on foods are continually preparing material to be broadcast through our regular bulletins and news releases, dealing particularly with balanced food rations and proper diets, in an effort to encourage more healthful conditions where before little attention had been paid to such things. The use of dairy products is widely advertised, the need of fresh air in sleeping rooms, and the right preparation of foods. All these things come in for considerable attention in the publications of the department.

Of course one could consider such activities of the Department of Agriculture as its supervision of the Food and Drugs Act, its Meat Inspection and in fact all of the standardization of food stuffs as direct efforts to bring about a more healthful condition and as a safeguard for the American public. But, with all of this, it is very evident that the department is not yet doing so much toward directing the attention of the rural population toward the good health program as it probably will do in the future.

At the conception of the idea of a department of the federal government maintained for the benefit of the farmer, the prevailing idea was that it should better the farmer's crops, that it would teach him how to grow more bushels of grain per acre and how to produce more valuable livestock. For years that was the principal activity of the department. Now it seems that the popular idea has gone from greater production to more economy. I believe the next gesture is for the government to stress the necessity of improving the living conditions of the farmer. It must begin to teach him how to make his home more attractive, more convenient and more healthful. There is no doubt that each of these has a correlation with the others. With the dependence of the nation upon the crop of rural children, it is necessary that more attention be directed toward making these children the very best possible. To-day there are only 10 per cent of the farm homes equipped with running water, only 7 per cent have gas or electric lights, and only about 4 per

cent are heated with furnaces, which means that there is vast room for improvement in conveniences which city people consider practical necessities. When the time comes that the farmer's wife can care for her children with less exertion and enjoy the same conveniences her sister in the city has, you will find that her children will reflect in their physical conditions the advantages which modern conveniences will bring.

To-day we are hearing an increasing amount of discussion on the question of farm relief. I would say that a considerable amount of the farmer's present-day discontent with his position is that he is forced to deny his family many of the comforts which other people enjoy. When the farmer is able to produce his crops at a profit, one of the first things he does is to build a new home, equip it with running water, with electric lights, with a furnace, and begin to live in such a way as to lighten the burdens of rural home life which have so long been considered a drudgery on the part of his family.

The farmer has already realized the strength of his position in our national life. His economic value cannot be doubted. His political influence is steadily increasing. His views in the government will sooner or later bring him to a place where he will be able to demand the rights and the privileges compatible with the importance of his place in the social structure. When that time comes it is safe to say that the prosperity he will achieve for himself will make living conditions on the farm far different from the conditions of the past. Therefore, it is the province of the Department of Agriculture to promote the idea of rural conveniences by degree and by precept.

Through our division of moving pictures, the department is able to teach the lessons of good food, pure air, and general health in a way which will be more and more impressive as the idea grows. It is still a new venture to make moving pictures for use in rural schools, granges, and community gatherings, but its possibilities are unlimited. It is one of the means by which we propose to educate farmers and their families toward better living. It is growing more and more important that we emphasize the program proposed by this Association and in whatever way we may be able. To serve the rural communities we must somehow aim to bring about a universal regard for farm sanitation and better health generally in the rural districts.

The foundation of any health program lies in the home. That is so well known that it needs no elaboration. The home of the farmer is the place in which the Department of Agriculture hopes to teach the lessons of better protection and of greater heed to sanitation and to instill in rural America a consciousness of the value of its most precious product—its crop of able bodied children.

HEALTH PREPAREDNESS FOR THE CHILD ENTERING SCHOOL

MARGARETTA WILLIS REEVE

President of the National Congress of Parents and Teachers, Washington, D. C.

IT MAY seem sheer audacity in a layman to appear before an audience of professional men and women, to talk upon a health topic to those whose business is hygiene in all its varied forms; yet there is an old saying that "lookers-on see most of the game," and as with all wise saws, there is here an element of truth which may apply to the present situation, in which a non-professional, trained only in the school of experience, has been asked to make a small contribution to the discussions of this eventful week.

In addressing the educators of the country, the speaker has called their attention to the fact that for many years they have been holding great conventions, at which they have told each other all their needs and desires—better schools and better equipment, better teachers and better salaries. But they have told their plaintive tale to ears already but too familiar with its every detail; they have told it and have gone away, to return a year later and tell it again, to those who are powerless to effect the remedy. Now they are beginning to tell their story to the public, the public which pays, which will always pay for anything it really wants, as is evidenced by the record of billions spent annually for candy and chewing gum, for cosmetics, cigarettes and cinemas, and the people are coming to see the value of education and to count it among the necessities of life.

Knowledge is useful only in the degree to which it may be made to function; its mere accumulation is like the heaping up of riches without knowing who shall gather them. In justice to the splendid medical profession be it said that at no time in the history of the world have their particular riches been dispensed with such lavish hand. Reliable information in popular form is being scattered abroad; but like the seed of which the parable tells us, some falls by the wayside, some on stony ground, some among thorns, and only a portion finds fertile soil prepared for it and so takes root and brings forth fruit.

Until very recently the matter of health and disease was one which, like education, rested entirely in the hands of the professional. The physician or surgeon, except in the case of the beloved and, alas, rapidly vanishing family doctor, was a remote and awe-inspiring help in time

of trouble, and a person, man, woman or child, not unmistakably ill, was considered well—or well enough.

Then gradually developed the health campaign so gallantly carried on by doctors and nurses, battling, often in vain, against the walls of indifference, ignorance, inertia, behind which the general public was, and to a great extent still is, firmly entrenched. At two points the defenses have yielded. The very rich have added preventive care as one more luxury, and the trained nurse has replaced the white-capped *bonne* in the nurseries of the millionaire. The very poor are being surveyed, districted, investigated and gathered into clinics by social workers and visiting nurses, and "blue-ribbon babies" are being held up as objects of attainment to those whose circumstances bring them within the reach of charitable enterprise.

But in that vast, unexplored territory which lies between poverty and riches dwell the hordes of Average People. Here are to be found those who usually know an ill child when they see one, but who do not recognize the state of not being well; the people who say proudly, "Oh, my child can eat anything," and who let him do it; the people to whom the two or three dollars to be paid for an office visit to a physician constitute the week's margin, and sometimes more, for clothing extras, for the little comforts of the home, or for family amusement; those who are overworked, or tired, or lazy, and who give their children coffee and fried food and canned stuff just because they are tired or lazy, and so take the easiest way. Here too we find those who take the advice of mother, or grandmother, or the lady over the way, and who buy and widely advertise the patent medicine because it may be procured without the accompaniment of the physician's fee for the prescription; and those who still believe that it is a good thing for children to "take" all the diseases possible in the earliest years, because "they have to have them anyway, and the sooner they are over them the better," and so expose their own and other people's children mercilessly to contagion. They are well dressed for the most part, these people. They often wear fur coats and silk stockings when they take their walks abroad. They smoke cigars with gaudy bands around them, and they drive Fords, or better. They cannot afford nurses for their children; they would not be seen at a free clinic; they are affectionate and well meaning, often, but they are ignorant, and they do not know it.

"He that knows not, and knows not that he knows not, he is a child—teach him."

Thirty years ago a woman who knew and loved children set a great idea in motion, that of parenthood as a profession, and she summoned the mothers of the land to take counsel together. From that first Con-

gress of Mothers has grown a mighty organization, a million parents and teachers united by one central purpose, the welfare of the childhood of our nation. Reaching now from the preschool circle through grade and high school to the college association, this coöperative body, meeting usually in that great American forum, the public school, has made of itself a broadcasting station through which the average parent, and the average teacher, may be reached and influenced. By its means the health as well as the educational program of the school may be carried over and made to function in the home; the young untrained mother may be drawn into the study group; and the community may be awakened to its responsibility for the recreation which is one of the best forms of preventive medicine both morally and physically.

For many years this congress has striven to nourish the under-nourished child, to promote health through play, to better general conditions, while slowly finding its place in education and learning its limitations as well as its opportunities. In 1920 it began to draw in its somewhat scattered forces and in 1923 concentrated them largely upon a program of five objectives: (1) the education of its rapidly increasing membership in the duties and privileges in its field of work; (2) the development of the idea that parenthood is an all-the-year-round profession which takes no vacation and whose busiest season is to be expected when the schools are not in session; (3) the restoration to the home of the things of the home in order to relieve the congestion in the school system; (4) the awakening of the general public to the value of education and its responsibility for assuring it equally to every child, everywhere; (5) the promotion of law observance, beginning with the preschool child in the home and applied equally to civics and to health.

As the second and fifth of these points developed, the conviction strengthened that the best contribution which the home could make to the school with which it had formed such a close alliance, was a pupil physically sound and consequently mentally alert; and that to be soundly effective, the observance of the laws of health must begin with life itself and not upon the attainment of school age.

After observation of two experiments, one by the California branch in coöperation with the state health authorities, and one in Georgia in connection with our preschool circles, in the summer of 1925 the National Congress of Parents and Teachers made what is to the best of its knowledge and belief the first definite nation-wide effort to place upon the parents, fairly and squarely where it belongs, the responsibility for sending to school a child ready to be taught. As a result of this step we are seeing to-day what we believe to be the dawn of a new era, one in which the perfect child shall be the average child, not the rare

exception; one in which the undernourished, the hard-of-hearing, the half-blind, the mentally retarded (because physically unfit), shall be in the minority, and the reproach of the community shall fall where it should, upon the negligent father and mother who wait for the orders of a health policeman before they learn and obey the laws of health.

Launched late in June of last year, the movement was shadowed by prophecies of failure because of lack of adequate preparation, but some good friends said: "Go ahead. Get people to thinking and talking about this thing. The idea is a good one. It will sell itself. If even a hundred children can be helped in 1925, why wait a year?" So we who knew by past experience what parent power once aroused can accomplish were glad that others shared our faith, and like the good old Swiss Family Robinson, "we thanked God and took courage."

It is not easy to find words which will express the recognition due to those men and women, parents, teachers, doctors and nurses, who in the face of almost insuperable obstacles—closed schools, scattered children, vacation-seeking families, ignorance, prejudice, self-satisfaction—saw what might be achieved and went undaunted on their way throughout the blazing summer, finding their reward in the amazing success which crowned their efforts when the children trooped schoolward in September, thousands of them, 100 per cent free from remediable defects.

At first there was some feeling among the health authorities that an amateur, dread word, was trying to usurp the place of the expert, but gradually it became clear to the most sceptical that it was as an auxiliary and not as a substitute that the Parent-Teacher Association desired to serve. The Summer Round-Up of the children is not an effort to secure such an exhaustive examination and diagnosis as belong in the province of the specialist. Its aim is to send to school in the first grade a class as free as possible from those handicaps which, if neglected, will result in absences from school in the most important opening months of the term, or in the inability of the pupil to do the work required—dull hearing, imperfect vision, infected tonsils, adenoids, carious teeth, skin eruptions, bad scalp conditions, faulty posture, malnutrition and heart trouble. All these save the last two are readily curable in the three months allowed, and if the medical inspection reveals diseased heart or lungs, defective nerves or nutrition, and the child is placed by its parents under treatment in May, it will either have improved sufficiently in health by the first of September to be able to do efficient work, or the discovery will have been made that the schoolroom is no place for it until the handicaps have been removed and it may enter the race with a fair chance of success.

Some medical men have apparently feared that a system of free

medical service was being established, but examination is not treatment, and the discoveries made in the former are referred for the latter to the family physician unless financial circumstances are such that the patient would in any case be eligible for free clinic attention.

The results of this first campaign are interesting, not so much perhaps from a technically scientific point of view as from that of social science, since doctors will disagree, and a cross-section of the United States will always find it hard to standardize its findings with absolute accuracy. Some items taken from the medical examination blanks filled out and signed by doctors and nurses may be illuminating. These reports were tabulated by the Elizabeth McCormick Memorial Fund.

In a group of 1,129 children from 11 states, ranging from entrants to a rural school in a class of 9, to a city round-up of nearly 400, were found 2,693 defects—an average of 2.4 per child. Thirty-three children rated 100 per cent. Vaccination was absent in 501; 482, or 42.6 per cent, had carious teeth; 477, or 42.2 per cent, had bad tonsils; 335, or 29.6 per cent, had adenoids; 229, or 20.2 per cent, had gland trouble; 718, or 69.7 per cent, were underweight. Only 80 rated over 90 per cent in general condition; 162 rated from 80 to 90 per cent and 291 were under 80 per cent.

Other defects listed included throat, eyes, ears, feet, spine, skin, lungs, heart and about eighteen other counts, as listed in our examination blank approved by the American Medical Association.

The machinery used is so simple as to be easily set in motion, but the power which it generates runs along wires inaccessible to any other force. The National Congress of Parents and Teachers has something over 16,000 units in 47 states, the District of Columbia and the Territory of Hawaii, and to these groups operating inside of the schools went the call to put parent power to work. Pride or sensitiveness or honest ignorance of normal health standards often bars the door to the professional health worker. But the Parent-Teacher Association was founded on the motto, "Pull Together Always," and when those who have learned to work together for such a common universal interest as their children, undertake a campaign, all barriers are down and every member is stirred to activity. It becomes a challenge to every parent, not only that his or her own child shall go to school a blue-ribbon child, but that every child in the community shall have the same distinction. From porch to porch, across backyard fences, at market and meeting house, yes, and even through shops and business offices runs the question: "I am making my child 100 per cent ready for school. What have you done about yours?" Herein lies the whole secret of the success which this year will bring, at a conservative estimate based upon the entries already received, 50,000 first grade boys and girls for physical

examination and correction, 50,000 children whose parents are aroused and informed and who are proud of their new knowledge.

The plan which proved satisfactory in 1925 is being followed this year with such improvements as experience has suggested. In February a letter was sent to the president of every state branch of the Congress, requesting active coöperation and the reprinting in the state bulletins of the "Call to the Campaign," which went out in the official magazine, *Child Welfare*, with the requirements, the first of which was the registration of every entering association with the state president. On the receipt of these registrations at the Campaign Office, there were immediately forwarded to the associations: a First Report Card; a sample Examination Blank; the Baldwin-Wood weight-height-age table, and a "broadside" containing some supplementary information and nine "stories" outlining different successful methods developed by local groups, ranging from the rural school with half a dozen entries to the city school with fifty or more. The First Report Card contains the following brief questionnaire to be filled out and returned at once to the Campaign Office:

- A. Name of Association City State
- B. Paid membership in National Congress as of Jan. 1, 1926
- C. Name of President
- D. Name of Local Campaign Director
- E. Type of School— City Town Rural
- F. Total number of pupils enrolled 1925-1926
- G. Approximate number of children expected to enter First Grade, 1926
(Secure signature of Superintendent or Principal for F and G)

On receipt of this report the office sends to the association the number of examination blanks required for the class, an adequate supply of the tables and broadsides, some excellent material to be distributed to the mothers of the children, and a Second Report Card to be returned to the office after the second examination, before October 1, on which these questions appear:

- How many children were reported in May Survey?
- How many of their parents were members of the Parent-Teacher Association?
- How many children reported for the May examination?
- Date of May examination Date of September examination
- A. How many children have entered your First Grade?
- B. How many passed 100 per cent health test in May examination?
- C. How many passed 100 per cent health test in September examination?
- D. Number of remediable defects discovered in May examination
- E. Number of remediable defects corrected as a result of the Campaign
- F. Percentage of gain, based on number of defects corrected before opening
of school as compared with number found in May Round-Up
- G. Class percentage in health as of September, 1926

To stimulate interest in the new undertaking a well-known publication offered in 1925 and 1926, \$500.00 to be awarded in prizes to the three associations securing the best results and offering the most constructive

plans for the local round-up. The associations desiring to compete for these prizes, which were \$250.00, \$150.00 and \$100.00 respectively, were required to submit also a story of not more than 1,000 words describing the methods employed, the community coöperation secured and the results attained. Owing to the tremendous increase in registration this year, the prize money has been divided into five awards, ranging from \$150.00 to \$50.00. The money is to be expended for the health program of the school according to the decision of the teachers and the parents in the association.

So great has been the interest aroused that the U. S. Bureau of Education has lent every possible assistance, sending out letters to every state superintendent and commissioner of education, as well as to about 14,000 county and city superintendents, asking their active support of the movement. The Chief of the Children's Bureau has sent a letter to the heads of all state departments of health requesting their coöperation, and has also supplied valuable educational material for distribution to parents. The American Medical Association has revised the Examination Blank and has printed and presented to the campaign 10,000 copies of the Baldwin-Wood Tables, and the National Education Association has given it wide publicity through its official *Journal*.

The fine response from the state departments of health has led to the agreement that when the state authorities prefer to use their own blanks and will supply them, they will be accepted; otherwise the Campaign Office furnishes free a clear and concise form of examination approved by the highest medical authorities.

That this development of health preparedness works may be best illustrated by some concrete examples which have at least the merit of freshness and originality.

Come with me first away down in Mississippi, to a quiet little town unchanged since the Boys in Gray marched through its shady streets more than 60 years ago, and see how their descendants have answered to the new trumpet call.

The president of the Barrow Parent-Teacher Association, the winner of the first prize in 1925, called together a woman member of the school board, the city superintendent of schools, the school principal and the chairmen of her health, publicity and finance committees. The publicity chairman induced the editor of the local paper to publish an article explaining the campaign and asking the coöperation of parents, physicians, dentists and the community at large in carrying it through, and he loyally continued to publish weekly articles until the campaign closed.

The health committee visited the dentists and physicians who agreed to give their services either in their offices or in the school building. On

a day set for the first examination prospective first grade pupils having been notified by the principal came to the school where they were divided into three groups, two remaining in the building to be weighed and measured, given dental inspection and tested for heart, lung and skin defects. The other group, accompanied by the mothers, were sent to the office of the eye, ear, nose and throat specialist, the groups later interchanging. Each child was given his record card to take to his parents, the district was divided into three sections and the chairman of each followed up the work so well begun by keeping in close touch with every home. Two specialists, 3 physicians, 3 dentists, 14 mothers and 2 teachers assisted in the work. Among the 34 pupils examined, 57 defects were discovered, as follows: teeth 18, tonsils 19, adenoids 2, heart 2, eyes 3, ear 3, nose 3, underweight 7, overweight 2. The results of the campaign showed 54 defects remedied, a total gain of 94 per cent.

The scene changes. Far away in North Dakota is a tiny town in which 10 little boys and girls are making ready for their first great adventure. Not until August did the call reach that distant land, but with it came the county nurse, full of enthusiasm to meet the eager response of the local president, and in one day they traveled 25 miles in the nurse's car making house to house calls. How those devoted women labored! The doctor from the distant town came to make the examination, and only 1 of the 10 rated 100 per cent. Two had tonsils and adenoids badly in need of attention, all the rest had teeth troubles; only 3 were vaccinated; 1 was much underweight. Then, too, it was the busy season. Threshing was in full swing. Most of the fathers owned threshing outfits and the mothers had to cook for from 6 to 15 men, which, as the brave little president remarked, "of course kept them quite busy." Then it rained for a week and the roads as they have them in North Dakota were well nigh impassable. Finally, the mothers were persuaded to leave their work long enough to be driven to the doctor, with the babies. Four miles to the north drove the president and then 4 miles to the east to gather her load, but the children were set right. In September the indomitable county nurse traveled the 29 miles from the county seat over inexpressible roads in pouring rain to check up the children, and a gain of 14 per cent had been made by the class.

Will you take yet another journey with me? This time we will go to an agricultural and industrial town in Ohio, where the entire community was enlisted in the undertaking. The Parent-Teacher Association asked and secured the coöperation of the school superintendent, the board of education, the first grade teacher, the ministers, the motion picture exhibitor, the newspaper publisher, the local physicians, the dentist, the county nurse, and finally the county board of health. The ministers

said: "We will preach physical fitness from our pulpits," and they did it. The editor told the story of the campaign each week in his paper, and the exhibitor secured and ran health reels with his other films. Sixteen women were appointed to visit the 41 homes represented by the incoming first grade, and the homes assigned to them were visited not only through the summer but during the year. When all the parents had been called upon they were invited with their children to a party in one of the charming homes of the town, to meet the teacher of the first grade. The younger children were also invited and 8 high school girls amused them while the mothers enjoyed a care-free afternoon. The pretty young teacher talked to the children and told them to get strong and well before school began, and she told the mothers what an advantage it would be to send their boys and girls to school in good condition. The campaign was organized then and there, refreshments were served, and the president tells us that they all left the meeting with the feeling that a new era had started in their community. Every mother came to the clinics on schedule time, and the children wanted to know if they were at another party! The results measured up to the effort put forth and the town has laid the foundation for a real health consciousness.

Just one more story to show how universal is the application as well as the appeal of the idea. In a prosperous city in Georgia 339 children were reached and examined. Twelve clinics were held, one in each of the city schools. The rule of the individual school unit is maintained and has proved its value as reducing the apparent size of the task and concentrating the interest of parents, teachers and children. The school superintendent offered the use of all school buildings; the director of the board of health secured the doctors for the examinations, two for each school, and the clinics were held two a day for 6 days, from three until five o'clock. A chairman was appointed for each school district, a letter addressed "To the Mothers of a Six Year Old Child" was printed, explaining the free health examination, the time, place and object of it, and this was distributed by the boy scouts who reported, on cards provided for the purpose, the name of the child and of the parent thus visited. Members of a committee then called upon each mother and established firmly the interest thus aroused. The community workers in the mill district took up the challenge and volunteered to bring to the clinics the children of the mothers who were working in the mills and so could not make the clinic hours. Statistics show that 95 per cent of the mothers reached brought or sent their children to be examined. All the hitherto unvaccinated children were vaccinated at this time. Two cases of severe heart trouble were found and each

parent was advised that it would be dangerous to the child's life to send it to school before receiving some treatment. Eight cases of infectious skin disease were discovered, all but one in the same school district and an epidemic was thus undoubtedly averted, while 5 extremely under-nourished cases were located and afforded relief. These are but a few of the gratifying results of the campaign.

Competition is a means to many ends and is not always the best means. But this particular form of rivalry is leading by swift and steady steps, not to a prize but to healthy boys and girls; not to reach a goal ahead of all the others but to make a perfect score; not to be the sole winner but to be one among many who are victorious; so that the children of the town, the state, and the nation may be what it is their right to be, whole in body and free in mind to grow toward that type of manhood and womanhood which is the lawful heritage of the sons and daughters of a country which claims for its citizens certain inalienable rights—to life, liberty and the pursuit of happiness.

REPORT OF THE GENERAL EXECUTIVE*

SAMUEL J. CRUMBINE, M.D.

ADVANCING THE CAUSE OF CHILD HEALTH

IT HAS BEEN the purpose of the American Child Health Association during 1925 to build, on the experiences of its earlier years, not only a year of actual accomplishments more than justifying its existence and its expenditures, but also firm foundations for constructive development of "a permanent American movement toward securing to our children their most elemental rights: to be born well, to have a healthy childhood, and to reach maturity in the happiness that comes in its fullness only to those whose physical heritage has been safeguarded," to quote Mr. Hoover.

President Harding once said, "If I were to offer a prayer, it would be first for the spiritual excellence of our nation and next for its well-being in health. In order to effect the physically perfect nation, I would begin with the children." To this prayer and wish we can all utter an immediate assent. It not only appeals to our reason and emotions, but it will bear the most critical analysis as to its social and economic soundness and for its point of departure as a program in social work and personal and public health, for if enduring progress is to be recorded in these fields of human endeavor, we must build on the prophetic words of the President—"I would begin with the children."

To this end the Association has given, increasingly, to the planning and working out of its projects, the joint leadership and service of all Divisions and has endeavored to broaden and strengthen its working relationships with national and state groups, with the editors of the country, and with leaders in many allied fields.

The record of the Association's 1925 work is a record of service multiplied many-fold by the generous coöperation of good citizens in many groups, official and unofficial, throughout the country. Evidences of this are perhaps more outstanding, because more directly traceable, in the nation's response to the call for observance of national child health day; but it is the coöperation of many public health experts which has helped to make *A Health Survey of 86 Cities* a real influence in city health advancement. It is to the good-will of many editors that

* Report to the American Child Health Association for 1925 by the General Executive, presented at the Third Annual Meeting, New York City, November 13, 1925.

the Association is indebted for publication during the year of more than 138 magazine articles on child health.

A study of the history of the development of child health knowledge and practice reveals a missing link between the knowledge and its practical use in the real advancement of child health in the homes, schools and communities of America. This is the great opportunity waiting the American Child Health Association:

To serve as the connecting link between the findings of scientists and teachers, research groups and demonstrations, and the educational and distributing machinery of other national bodies and of the broad-visioned commercial groups of the country.

To act as the interpreter of the specialists; to translate tested information and knowledge into terms of everyday living and thinking for teachers, parents and children.

In presenting the following summary of the work of the American Child Health Association during 1925 to the Association and its friends, it is hoped that a fairly clear picture will be shown of the purpose, scope, significance and influence of the work undertaken by the Association.

As the activities of October, November and December, 1924, were covered in a report made January 1, 1925, by the former General Executive, Mr. Courtenay Dinwiddie, now Director of the Child Health Demonstration Committee, this summary deals almost exclusively with the first ten months of 1925.

It is fitting to here record the Association's debt of gratitude to its President, Mr. Herbert Hoover, for his constant generous and valuable counsel and interest; to the Executive Committee and Board of Directors for their stimulating and unfailing helpfulness and good-will.

A HEALTH SURVEY OF 86 CITIES

No single undertaking of the Association better illustrates this purpose and this policy than *A Health Survey of 86 Cities*, the most important and significant project yet undertaken by the Association.

The idea of such a nation-wide survey was Mr. Hoover's. The survey itself, directed and made by the Association's Division of Research, was carried on in close conference with the state and local officials, the nonofficial agencies, and the citizens of 86 cities in 31 states.

The Report* was issued on October 12. The Letter of Transmittal stated that the purpose of the survey was to secure facts from which there could be expressed a comprehensive picture of child health in the

* *A Health Survey of 86 Cities*. Octavo, 614 pages. 43 Charts. Price \$3.00.

United States. The field work was carried out by five men of training and experience in public health, and occupied the period from January to June, 1924. The time elapsing from that date to the present has been spent in tabulating information, analyzing the material, and writing the report.

The report carries an introduction describing how the work was done. Chapters in Section II are devoted to the practices in the different lines of health work in the cities as a whole. Section III contains sketches of each of the 86 cities. In the final section will be found constructive suggestions for the organization of health work in a city of 50,000 population.*

The outstanding facts of the survey are these:

1. Each city was found to be carrying on some organized effort for bettering the health of children, although the amount in the average is perhaps not over half of what is to be expected in a reasonable health program.
2. By utilizing the scientific knowledge now at hand it is possible, by better organization, to increase materially the health protection of children at no great increase in cost.
3. The greatest needs are: well trained health officers devoting undivided attention to the task; standardization of methods; more thought in explaining health work to the public; and better team-work among public and private health agencies.

It may be added that the results of the survey have already been of service to communities in bringing about changes for the better.

Every Division of the Association gave generously of its best to the analysis and evaluation of the material; to the compilation, editing and publication of the Report in its final form. Counsel and helpful criticism have been given freely by many public health authorities outside the Association's own staff and Board of Directors.

Side by side with the drafting of the Report has gone on, always, and only, on invitation of the local health officials, almost constant service in the surveyed cities. Usually this has taken the form of personal conferences with local leaders and officials for the purpose of formulating and securing the adoption of a well-rounded program of health promotion. As an illustration of the Association's service, one city, coming to a realization of its public health needs, has completely reorganized its department of health and has secured one of the country's ablest health officers to carry on.

SAFEGUARDING MATERNITY AND INFANCY

Our Medical Service and Public Health Nursing Divisions have been of the greatest value in this field, by their use of available scientific

* This section has been reprinted in pamphlet form (edition 500) for the official use of city health officers and field workers.

information and knowledge in the home, the school, the industrial establishment and the farm.

The year has seen steady development of three pieces of work, in whose far-reaching, permanent influence in reducing the country's infant mortality the American Child Health Association has strong faith: Promotion of Birth Registration, Education and Supervision of Midwives, Campaigns for Clean and Safe Milk.

Promotion of Birth Registration: Assistance in advancing better understanding and better methods of birth registration has been given by the Association in Arkansas, Colorado, Louisiana, Oklahoma and in Wyoming. These states report that the service given by the Association has been distinctly helpful in their efforts to qualify for admission to the birth registration area.

Education and Supervision of Midwives: The Association's coöperation with certain southern state departments of health in finding, and proving, practical methods of solving the midwife problem is, again, pioneer work, whose influence on maternal and infant health can hardly be estimated.

In North Carolina during 1925 the work was carried on in three counties in coöperation with the county medical societies and the state and local departments of health. The resultant plan is to be used as the official program of midwife education and supervision in the other thirty-nine counties of North Carolina, now having full-time health units. It is the intention to extend this procedure into every county in the state as rapidly as possible; and to this end distribution of the state maternity and infancy funds is being conditioned upon adoption of this model midwife control program.

Campaigns for Clean and Safe Milk: During the year ending October 1, 1925, the Association has loaned its clean and safe milk personnel and laboratory equipment to the State Departments of Health of Georgia, Kentucky, Oklahoma, Utah, Washington and Oregon. Some of the known definite results of this service have been:

The passage of a satisfactory milk ordinance in two cities in Kentucky, two in Georgia, and probably three in Oklahoma.

Provision for local laboratory control in five different cities in three states.

In one Georgia city, the organization of a local dairymen's association, membership being conditioned on compliance with certain definite standards as laid down by the state and local governments.

Stimulation of state and local interest in milk supervision and control to a most remarkable and encouraging degree.

A pledge by the state authorities in three states to continue the state-wide program. In Oklahoma the work is still being conducted by the State Department of Health and the Dairy Extension Division of the State Agricultural College. Gradually the scope of the survey has broadened in Oklahoma until it now includes

a complete survey of each community, with special emphasis upon the safety of milk and water supplies.

A letter of hearty appreciation from the state health commissioner of Utah, "for the invaluable assistance you have rendered the state," commends in closing this "policy of constructively promoting improvement in the milk supplies as one of the most vital factors in the promotion of child health."

In a number of states portable laboratory equipment for the examination of milk has been secured, and regular supervision of milk supplies in the smaller communities has been adopted by the state as a permanent policy.

Helping Crippled Children: It is especially gratifying to record at this time some of the results directly traceable to the activities of two members of the American Child Health Association staff in Maine in 1923 and 1924.

It will be remembered that, following a survey of the crippled children in Maine, and the presentation of the findings of this survey before the Rotary Clubs and Granges of the state, carried on jointly with the State Departments of Education and Health and the State Medical Association, the carrying on of the work was transferred to the Maine Public Health Association. This association's report of October 29, 1925, shows that crippled children's clinics have been held in nine cities, reaching a population of 290,370; that 571 cases have been examined, 264 indicated for hospital care, 62 sent to the hospital, 197 given home nursing, and 733 nursing visits made. The report states:

"Scores of these cases, which would have been a burden for life on themselves and on their families, have had restored to them a real opportunity to become self-supporting members of society and to do their share of the world's work."

TRAINING OF TEACHERS AND LEADERS

The Association's Division of Health Education has set as its ultimate objective the rendering of effective assistance to official groups in the training of teachers and leaders in health education, reckoning this as its greatest contribution to the child health movement. To this end the following major projects were undertaken:

A Demonstration of Method of Training Teachers in Service Through the Use of the Project Method: A three months' seminar was conducted at East Orange, at the invitation of the Superintendent of Schools, and participating in it were a chosen group of teachers and principals, a school nurse, school physicians, and members of the Board of Education. The result was a tentative course of study and program

of administration, which this year is being still further tried out, amplified and modified as a result of use. It is hoped that the experience of East Orange may be developed into a method of approach of great value to supervisors looking for practical plans to improve the health programs going on under their direction.

Summer Courses for Teachers: The Director of the Division gave a six weeks' course at Columbia University's Summer School on "The Organization and Supervision of Health Education," in which thirty-eight different leaders in various health education fields worked on their yearly programs. The significance of this work is increased by the fact that a large number of these students were instructors in teacher training institutions. The course was of value to the Health Education Division in its revelation of the needs of workers in the field. In addition to the summer course thus given by a staff member, the Division assisted 17 normal schools and teachers' institutes throughout the country with elaborate plans and suggestions for courses in health education.

Teachers' Colleges: Not only full-fledged teachers but the embryo teacher, the student in the normal school, must be trained for health education.

To this end the normal schools and teachers' colleges must be stimulated to improve their health education programs. The Division arranged a conference of normal school administrators at Cincinnati in February, in conjunction with the Joint Committee of the National Education Association and the American Medical Association, and coincident with the annual meeting of the American Association of Teachers' Colleges. The evidence seems conclusive that this frank and helpful discussion of the particular health education problem in teachers' colleges, calling for immediate solution, was a constructive service which only the American Child Health Association could have arranged at this time. At the time of this conference, a fellowship was offered to faculties of these institutions for the most effective programs of health education. The result was an interesting collection of material describing student health service, instruction and technical training in health education, as carried out in some twenty-five leading teachers' colleges. This material is being worked into a service bulletin which will fill a definite need.

Child Health Education Conference: Just as *A Health Survey of 86 Cities* is easily the major activity of the Division of Research for 1925, so the Division of Health Education may count as its most important accomplishment the Health Education Conference held at the University of Chicago in June. One hundred and seventy-seven leaders, and coworkers in the field of health education were present. The purpose

of the conference was to discover what exactly needed to be known and to be done to make our goal of healthy children more universal and certain of attainment, and, on the basis of such findings, how best can leaders be prepared.

The great outcome of the Fourth Health Education Conference of the American Child Health Association, held this June at the University of Chicago, has been the detailed formulation of these questions into a set of recommendations* for study and research.

The recommendations offer a definite challenge not only to the Association, but also to the teacher in her classroom, to the principal in his school, to the special teachers and supervisors, to the research worker in fields of child health and child behavior, to the administrators in the college, the secondary school, the elementary school, to the doctor, to the nurse, and to the graduate student in the university seeking to understand and clarify his special problems.

It is apparent that the most important project of the Health Education Division, therefore, for the next three years will be:

To discover the answers to these questions and to assist parents, teachers and leaders in health education to reorganize their present methods in the light of such findings.

This conference points to the need of summing up the net results of previous years of effort in health education, and, on the basis of this summary, to plan future work, as effective along new lines as the past work has been in its way.

Although scattered and apparently insignificant piece by piece, the accumulated value of the correspondence and personal conferences held with workers in health education is one of the most effective means by which this Division is achieving its aim of influencing for the better, the development of health education.

MAY FIRST: THE CHILD HEALTH DAY

The more significant facts and figures of the nation-wide observance of May Day as National Child Health Day are given in the May Day 1925 Report, sent on September 14 to the Directors of the American Child Health Association, to all state health officers and state superintendents of education, and to May Day state chairmen.

The following may be noted briefly as some significant points in the organization and observance not only of May Day 1925, but also of many May Days to come:

* These recommendations were published in the *Child Health Bulletin*, September, 1925. A reprint will be sent on request.

Organization of 42 states, with state department of health officials as chairmen in 21.

The Metropolitan Life Insurance Company placed an attractive page advertisement "Start May First," in 22 May magazines (circulations totaling 16,561,000).

Life Buoy Soap ran a half-page advertisement, "May Day Child Health Day," in 312 newspapers (circulations totaling 13,500,000).

The Woolworth stores (1,400) arranged special window displays, featuring posters carrying President Coolidge's May Day message.

The United States Public Health Service broadcast a child health message, prepared by this Association, from its 44 stations.

The records of the Association carry lists of 844 newspapers known to have published some May Day editorial mention (estimated circulations, 22,860,941); of over 70 magazines, which used May Day pictures, articles, or editorials.

The whole-hearted and splendid coöperation of the following among other groups:

- American Federation of Labor
- American Legion
- American Red Cross
- Boy Scouts of America
- Children's Bureau
- Fifth Avenue Association
- General Federation of Women's Clubs
- Girl Scouts of America
- Life Extension Institute
- Motion Picture Interests
- National Amateur Athletic Federation of America
- National Child Welfare Association
- National Congress of Parents and Teachers
- National Health Council
- National Tuberculosis Association
- Playground and Recreation Association of America
- United States Department of Agriculture

Promotion of organization for next year, and for making May Day always a day of counting child health gains and of renewing support of permanent child health services, began with the first letters of thanks sent in May. Responses have been gratifying in number and in enthusiasm. As one state chairman, also a state health official, sees it:

"I feel that the annual celebration of Child Health Day is going to be a big factor in encouraging communities to take the initiative in

undertaking various kinds of child health work. The Child Health Day celebration gives them some definite starting point from which undoubtedly many other activities will develop."

Best of all, there is encouraging evidence that the vision of Mr. Hoover's letter of May 1 is being adopted widely as a working program, and that there is indeed "a veritable army, all united in an effort to do the utmost within their power in a permanent American movement toward securing to our children their most elemental rights."

THE CHILD HEALTH DEMONSTRATIONS

The then General Executive in his annual report of a year ago declared the purpose of the Child Health Demonstrations to be, "to produce and develop practical programs of community and child health, which shall serve many other communities as well as the individual demonstrations. Achievement of an ideal program is not expected, but it is the hope that each demonstration community will show gains in development of resources and standards which will extend to other communities." The Director, in general management of the several demonstrations has submitted the following with reference to the present situation in the Child Health Demonstrations:

The Mansfield and Richland County Child Health Demonstration: At the end of the fourth year of the Mansfield and Richland County Demonstration a whole-time health department for the city and county, having operated as a consolidated unit successfully for a year, seems to assure a permanent and developing health unit. This health department still needs strengthening in certain respects, especially in its laboratory work and in the perfection of its milk supervision.

A consolidated and unusually effective program of nursing has been developed. Medical supervision of school children and of preschool children and babies, through health center conferences, is generally accepted. Health conferences are continuing and developing, especially in rural areas where progress at first was slow. The nursing supervision of pregnant women is especially well developed with the coöperation of the family physician. The health education program has been remarkably successful although with inadequate personnel. The County Normal School health education work has been praised by the highest authorities. There is regular annual dental examination of school children.

There is widespread community approval of the demonstration results throughout the county. In spite of the fact that practically all Ohio cities are in desperate straits for funds under the Smith One Per Cent Law, new appropriations from public and private funds will have

increased by January 1 to approximately \$1.00 per capita as compared to \$.35 before the demonstration began. The taking over of the demonstration on the basis of local support on January 1 is assured, with the continuance of all activities developed by the demonstration. Plans for financing the community health education work as a center for training and development of health education work throughout the state are now under consideration by the Red Cross.

The Fargo Child Health Demonstration: There has been widespread and, in general, enthusiastic acceptance in the community of medical, dental and nursing supervision and health education. The prenatal supervision of pregnant women, in coöperation with the family physician, has been developed satisfactorily, when the unusual amount of hospitalization and the exceptional amount of medical supervision in private practice are considered.

A whole-time health department has been established, the nursing work in the community has been unified, and the practicing physicians of the city are considering their responsibilities in relation to preventive pediatric work with an unusual degree of seriousness.

Public and private appropriations for public health work have increased more than \$28,000.00, or over \$1.00 per capita, in spite of financial stringency in a community dependent almost wholly upon agriculture. The further perfection of the work of the health department is perhaps the chief need in the community at the present time.

The Athens Child Health Demonstration: There has been a remarkable amount of team work between the health department, which was established before the demonstration began, and the work of the demonstration. The health department has been assisted not only in the work of the medical examinations, immunizations, and so forth, but in every other way. On January 1, 1926, a complete consolidation of city and county health department work will be effected, giving greater promise of stability and development in this field.

Exceptional difficulty was encountered during the first year in building up the nursing service because of changes in supervisor and staff membership, but this service is now rounding out well. It has absorbed the local tuberculosis nursing program. A good nursing program is developing more rapidly now in all other directions.

The medical program has already included practically 100 per cent school examinations and is developing along the line of preschool and infant examinations from month to month. The health education program has made excellent progress when the extraordinary handicaps are considered in the way of personnel, school organization, the considerable population of white mill workers, and of negroes. Physical education

has been correlated with health education in an exceptional way. Oral hygiene work is carried out by a paid oral hygienist with the coöperation of the dental profession. The midwife situation is well on its way to control through license and supervision.

In spite of the tragic financial situation for the whole northern part of Georgia, due to five years of poor crops and excessively heavy drought this year, and three bank failures, there has been an actual increase in local public and private appropriations for public health work of 50 per cent during the second year of the demonstration, making an increase in per capita local expenses of approximately \$1.00.

In general, it may be said that while the Athens Demonstration has been slow in starting, owing largely to difficult local conditions, excellent progress has been made in spite of them, and it will be possible from now on to give increasing attention to the quality of service.

Rutherford County Child Health Demonstration: Progress has been necessarily slow in this demonstration because of the inherent difficulties in a rural southern community containing a considerable percentage of negroes, mountain whites, and difficult industrial factors due to cotton picking, and so forth.

Because of widespread susceptibility there has been a marked epidemic of smallpox, requiring concentration upon the control of communicable diseases as a major measure. Especial attention is being given to diphtheria immunization this fall. Immunizations have been completed to date as follows: smallpox vaccinations and revaccinations, 4,622; complete doses of typhoid vaccine, 2,486; complete doses of toxin-antitoxin, 96.

Typhoid fever is a serious problem because the county is predominantly a limestone area. This communicable disease control program has absorbed much of the time of the nurses and of the sanitarian as well as the pediatricist and the doctor, who is the health officer of the county.

School examinations have been reasonably comprehensive throughout the county schools, and fair progress has been made in preschool and baby work considering the local conditions. On the other hand, follow-up work and correction of defects have been halting, and it will take a long time to build up a satisfactory and effective follow-up service.

A laboratory has been established by the demonstration. Coöperation with the physicians of the city and county has been excellent considering the local conditions.

The plans for the establishment of the first of the Commonwealth Fund hospitals, on the basis of local payment of maintenance expenses, in Rutherford County, appear to be working out satisfactorily.

The development of the local hospital should be also of distinct help to the work of the demonstration.

In general, it may be said that Rutherford County has the most difficult conditions faced in any of the demonstrations, and that progress has been good and community sentiment has been favorable in spite of the extraordinary difficulties.

The Marion County Child Health Demonstration: Before the completion of the first year it is too early to make many general statements. Marion County offers some of the most interesting conditions, due to variation in the character of the communities contained in it, differences between it and other demonstration communities in character of industrial population, and so forth.

Following extensive examination of children in the public schools, the nursing and medical work is being well developed with some especially interesting features in the coöperation with the local physicians.

The community enthusiasm has been very general. Next year will afford a better opportunity to appraise tangible results but at present the outlook is quite promising.

THE 1926 OUTLOOK FOR THE AMERICAN CHILD HEALTH ASSOCIATION

The effectiveness and character of the work of the Association for the past three years give hope for continued usefulness in our ever-widening field of opportunity in the cause of child health. More and more our resources and energies are directed toward coöperative projects of state-wide and nation-wide significance, with state or local departments of health or education. This policy promises permanency of program, leadership, effectiveness, and economy in operation without which the work cannot endure.

General Sir David Bruce of the British Academy of Science recently said: "Medicine of the future must change its strategy, instead of awaiting attack it must assume the offensive."

This is the strategy of preventive medicine and public health, the offensive of prevention. It is with this promotion of health, that the American Child Health Association is concerned.

The economic returns in wealth production by the proper use of this new strategy is so great as to be an investment of the highest value in dividends of longer, happier and more efficient lives, with a corresponding reduction in the cost of preventable sickness and premature death. What community, if it but understands, would not make such an investment?

"In order to effect the physically perfect nation, I would begin with the children," said President Harding. This then is the point of departure in building our health program for the coming years, for "the future of the race marches forward on the feet of little children."

The faith of the world centers about the interests of the child; the hope of the world is bound up with the future of the child, and the love of the world is lavished in the care of the child, to the end that the race may ever continue in its upward climb towards a higher civilization.

To this high purpose the American Child Health Association has dedicated its resources, its personnel, and its leadership.

THIRD ANNUAL MEETING
OF THE
AMERICAN CHILD HEALTH ASSOCIATION
BUSINESS SESSION
NEW YORK CITY, NOVEMBER 13, 1925

The third Annual Meeting of the American Child Health Association was held in the library of the general offices of the Association, 370 Seventh Avenue, New York City, November 13, 1925.

In the absence of the President, Thomas D. Wood, M.D., Vice-President, presided.

I. MINUTES OF 1924 MEETING

The minutes of the last annual meeting having been printed in the *Transactions*, on motion it was voted

That the minutes of the last annual meeting be approved as printed, and their reading omitted.

II. TREASURER'S REPORT

In the absence of the Treasurer, Mr. Edward M. Flesh, the Treasurer's report was read by S. J. Crumbine, M.D., and by unanimous consent approved as read and ordered placed on file. The report is as follows:

"The accompanying statements present a summary of receipts and disbursements of the Association for the nine months' period ending September 30, 1925. In condensed form the picture is as follows:

Total expenditures	\$308,233.88	
Less non-budget expenditures	53,836.37	
	<hr/>	
Budget expenditures, nine months.....	\$254,397.51	
Budget for the year 1925.....	\$396,733.62	
Expended under the budget for nine months ended September 30, 1925	\$254,397.51	
	<hr/>	
Balance for remaining three months.....	\$142,336.11	
Estimated cash requirements for the three months ending December 31, 1925, based on average monthly requirements of \$28,000.00 for past nine months		\$84,000.00
Funds Available		
Cash on hand, September 30, 1925.....	\$42,047.51	
Commonwealth Fund quarterly payment (recd. Oct. 1) ..	12,500.00	
Balance due from American Relief Administration.....	15,000.00	
Balance due from Laura Spelman Rockefeller Memorial:		
General	\$9,906.46	
Follow-up of 86 cities.....	7,057.99	
	<hr/>	16,964.45
Estimated returns, memberships and publications.....	4,500.00	
	<hr/>	91,011.96
Estimated carry-over of cash for 1926.....		7,011.96

On the above basis of calculation, it will be noted that in the practice of economies the Association has effected a saving in its expenditures under the budget of approximately \$52,000.00 for the period ending September 30, 1925, and an estimated saving for the full year's period of approximately \$58,000.00, all of which is very gratifying.

[Signed] EDWARD M. FLESH,
Treasurer."

III. SECRETARY'S REPORT

The Secretary of the Association, Philip Van Ingen, M.D., then submitted his annual report, which by unanimous consent was approved as read and ordered placed on file.

The report is as follows: "A summary of the more important matters upon which Executive Committee action has been taken since the last Annual Meeting is herewith submitted.

1. Technical committees designed to serve the various Divisions and interests of the American Child Health Association have been appointed with a member of the Executive Committee designated as chairman of each committee. The committees are as follows:

MEDICAL

Hamill, Samuel McClintock, M.D., Chairman	Knox, J. H. Mason, Jr., M.D.
Adair, Fred L., M.D.	Shaw, Henry L. K., M.D.
Cooley, Thomas B., M.D.	Smith, Richard M., M.D.
Grulee, Clifford G., M.D.	Van Ingen, Philip, M.D.
	Veeder, Borden S., M.D.
Moore, Helen A., M.D., Secretary	

NURSING

Place, Sara B., R.N., Chairman	Corbin, Hazel, R.N.
Anderson, Grace L., R.N.	Miller, Florence, R.N.
Boyd, Helen, R.N.	Theresa Kraker, R.N., Secretary

HEALTH EDUCATION

Wood, Thomas D., M.D., Chairman	Hetherington, Clark, Ph.D.
Bailey, Mrs. Edna W., Ph.D.	Kilpatrick, William H., Ph.D.
Bragg, Mabel C.	Waldo, D. B.
Burnham, William H., Ph.D.	Washburne, Carleton W.
Courtis, S. A.	White, Edna N.
Fowlkes, John Guy, Ph.D.	Winchell, Florence
Dolfinger, Emma, Secretary	

NUTRITION

Rose, Mary Swartz, Ph.D., Chairman	Talbot, Fritz, M.D.
McCollum, E. V., Ph.D.	Taylor, Alonzo, M.D.
Stanley, Louise, Ph.D.	Gillett, Lucy H., Secretary

RESEARCH

Van Ingen, Philip, M.D., Chairman	Gesell, Arnold, M.D.
Baldwin, Bird T., Ph.D.	McCall, William A., Ph.D.
Dublin, Louis I., Ph.D.	McCombs, Carl E., M.D.
Palmer, George T., Dr.P.H., Secretary	

PUBLICATIONS AND PROMOTION

Baker, George Barr, Chairman	Houston, Herbert S.
Barnard, H. E., Ph.D.	Marsh, Mrs. Benjamin
Galvin, William M.	Ward, Florence E.
Glover, Katherine	Root, Mrs. Aida de Acosta, Secretary

PUBLIC HEALTH RELATIONS

Abbott, Grace, Chairman	Russell, F. F., M.D.
Davis, A. T., M.D.	Williams, Linsly R., M.D.
Neafie, C. A., M.D.	Crumbine, S. J., M.D., Secretary

2. It was voted to hold the scientific section of the Annual Meeting of the American Child Health Association in Atlantic City in May, 1926, as a part of the American Health Congress, which is being sponsored by the National Health Council.

3. The permanent closure of the Far Western Office, upon the resignation of Miss Elnora Thomson, our Far Western representative.

4. The voting of an honorarium out of the Consultation Funds to Hugh Chaplin, M.D., for his services for 1925, in relation to the plan, which may briefly be summarized as follows:

To conduct a demonstration of:

- a. the outward manifestations of the points of a well built body and of a body in good running order.
- b. correct posture and slight posture deviations with causes and effects, and advice on the teaching of proper posture ideals.

5. It was voted to submit a change in Section 2, Article V, of the By-Laws to provide for regular quarterly instead of bi-monthly meetings.

6. The adoption of the recommendations of the Budget Committee, providing for a three-year budget, with an annual total of \$278,620, the amounts by Divisions being as follows:

General Expenditures	\$49,296
Administration	12,400
Information Bureau	3,960
Child Health Operating Service	37,380
Division of Health Education	41,460
Division of Medical Service	11,520
Division of Nursing Service	13,914
Division of Public Health Relations	30,720
Division of Research	22,640
Division of Publications and Promotion	55,330
Total	<hr/> \$278,620

7. The appointment by the President of a sub-committee of the Executive Committee to investigate what, in addition to present activities of the Association, we might undertake in the interests of the pre-school child.

8. The suggestion of the President of the desirability of making a survey of school health conditions in the United States, following the general principles formulated in the survey of 86 cities, the preliminary report to be submitted at the next meeting of the Executive Committee.

9. The membership of the Association, as of this date, is approximately 2,500.

10. The following publications have been added during the past year:

A Health Survey of 86 Cities.....	2,500
Annual Transactions, 1924	2,000
Cambridge Conference Report	1,500
Child Health Bulletin, March.....	3,500
June.....	3,000
September.....	8,500
Dramatizing Child Health	2,000
Happy's Calendar, 1926 (Dodge Pub. Co.).....	
House of Health Series (reprints).....	45,000
Infant Mortality Report	2,000
The Little Child in Our Great Cities.....	1,000
May Day Festival Book	10,000
May Day Plan Book	10,000
May Day 1925 Report	750

Sales, by months, are herewith submitted for your information:

January.....	\$1,438.63	July.....	\$1,602.85
February.....	1,076.23	August.....	1,558.78
March.....	1,866.03	September.....	2,338.01
April.....	3,494.19	October.....	2,282.63
May.....	1,322.08		
June.....	1,167.24	Total.....	\$18,146.67

11. Reports by the General Executive of satisfactory progress in the work of the various Divisions of the Association, despite large reduced expenditures and personnel for carrying on the work."

(Signed) PHILIP VAN INGEN, M.D.,

Secretary.

IV. SUGGESTED CHANGE IN BY-LAWS

In accordance with the recommendation of the Executive Committee at its October 14, 1925, meeting it was proposed that Section 2, Article V, of the By-Laws be amended to read as follows:

The Executive Committee shall fix the salaries of and appoint staff members to carry on the active work of the Association. It shall hold regular quarterly meetings. Special meetings may be called by the President, or shall be called at the written request of three members.

Upon motion duly seconded the amendment was unanimously approved.

V. ELECTION OF DIRECTORS

The Nominating Committee recommended the following names to fill vacancies on the Board of Directors:

1926

H. E. Barnard, Chicago	<i>vice</i>	James G. Berrien, deceased
Herbert Houston, New York	<i>vice</i>	Mrs. Pillsbury, resigned

1929

Thomas R. Crowder	<i>vice</i>	Elizabeth Fox, resigned
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and presented the following names for election to the 1930 class:

Fred L. Adair, M.D.	E. V. McCollum
Mrs. Nicholas F. Brady	Mrs. William B. Meloney
Edward M. Flesh	Frank C. Neff, M.D.
Arnold Gesell, M.D.	Mary Swartz Rose, Ph.D.
E. J. Huenekens, M.D.	Margaret K. Stack, R.N.
Albert H. Jewell	Marguerite Wales, R.N.
William Palmer Lucas, M.D.	Wm. H. Welch, M.D.
Ray L. Wilbur, M.D.	

Upon motion it was voted

That the report of the Nominating Committee be accepted and the persons whose names were submitted be regularly elected.

VI. REPORT OF THE GENERAL EXECUTIVE

The General Executive then submitted his report* for the year and after a brief discussion it was voted

That the report be accepted with thanks by the Association.

* Printed on page 22.

NEW BUSINESS

1. *Resignation.* The Secretary, Dr. Van Ingen, then read a letter from Mrs. Frederick Peterson presenting her resignation from the Board of Directors. Upon motion it was voted

That Mrs. Peterson's resignation be accepted with regret.

2. *Resolutions.* The following resolution was then presented by Dr. Van Ingen:

RESOLVED, That the American Child Health Association express, to the General Executive, heads of divisions, and each member of the working staff of the Association, its appreciation of and thanks for their faithful and devoted service during the past year. Such service has been given without stint, and often at personal sacrifice, for which the Association is grateful.

Upon motion the resolution was unanimously adopted.

3. The Secretary then presented the following resolution:

RESOLVED, That a committee be appointed to draft appropriate resolutions on the death of a most valuable member of the Board of Directors, James G. Berrien; these resolutions to be recorded in the minutes of the Association and a copy sent to Mrs. Berrien.

Upon motion the following resolution was unanimously adopted:

The American Child Health Association feels deeply the loss of Mr. Berrien from among its advisers and is conscious that such service as he has given for many years cannot be duplicated and cannot be measured.

His clear vision and sound judgment were influential in directing the policies of the Child Health Organization into safe channels, while thanks to his expert guidance, its publications from the first commanded attention. As the years went by, and the Child Health Organization merged in the present association, he still gave untiringly of his time and talent.

The officers and members of the American Child Health Association wish to express to Mrs. Berrien their sincere sympathy in her loss and to assure her of their gratitude for the contribution made by Mr. Berrien to the work of the association and the cause of child health.

There being no further business the meeting adjourned.

PHILIP VAN INGEN, M.D.,
Secretary.

REPORTS FOR THE AFFILIATED AGENCIES

[This summary was presented by Dr. Crumbine at the Affiliated Agencies' Luncheon, May 20, during the Annual Meeting in Atlantic City.]

In attempting to give a summary of the various types of work which have been done and are now being done by the organizations with which the American Child Health Association is affiliated, only broad general classifications can be made, because the descriptive terms used by the various organizations mean such different things. For example, one state means by prenatal care, letters sent out by the state health departments; another in speaking of prenatal care includes a clinic under the direction of the physician with follow-up nursing service; while another state means visits by a nurse.

Again, infant hygiene may mean care of the baby under 1 or under 2 years of age, while the child of preschool age may be from 1 to 4, 2 to 6 or under 6. Physical examination may mean merely weighing and measuring. Medical inspection is vague. It is difficult to determine where communicable disease work begins and ends, some include only the care of the sick, others include contacts.

In replies to the questionnaire sent out by the American Child Health Association, reports have been received from 210 affiliated agencies. Of these 200 are in the United States, 1 in the Philippines, 1 in Hawaii, and 4 in Canada, 1 in Australia, 1 in France, 1 in Czecho-Slovakia, and 1 in China.

The reports from the United States are from 36 official and 164 voluntary organizations. In 22 states and 11 cities the child health work is carried on under the health departments. In 2 states and 1 city, the child health work is carried on under the department of education, 3 states and 3 cities include the school child under other health supervision.

OFFICIAL ORGANIZATIONS

	Health Department	Education Department	Total
State	22	2	24
City	11	1	12
	<hr/>	<hr/>	<hr/>
	33	3	36

All but 2 of the states reporting are receiving funds from the provisions of the Sheppard-Towner Act. Within the past 7 years, 18 of these states have developed their maternity and child welfare work. These funds must be expended on maternity and child welfare work for children under 6 years of age. Such work as these health departments do for older children comes from other funds.

The official organizations report a growing interest in personal and community health matters; in evidence they cite the increasing demand for health conferences and permanent health centers and also that there is better coördination between educational and health authorities. More supposedly well children are being sent for examination to the family physician, more county health work is being done. In Indiana in 1920 there were 7 counties holding baby conferences, now in 1925 there are 92. The work of the 36 bureaus of child hygiene with which the Association is affiliated report that their work has developed not only extensively but intensively. The chief feature of their work is now health education.

VOLUNTARY ORGANIZATIONS

The work of the voluntary organizations may be roughly classified as being carried on (a) under medical and nursing direction, (b) under social auspices, (c) under educational direction, as shown in the following table:

<i>Medical and Nursing</i>	
Visiting Nurse Association.....	44
Clinics and Health Centers.....	35
Hospitals.....	12
Tuberculosis Societies	16
	<hr/>
	107
<i>Social</i>	
Relief Agencies and Institutions.....	17
Day Nurseries	10
	<hr/>
	27
<i>Educational</i>	
Institutions and Organizations.....	20
Parent-Teacher Associations	3
	<hr/>
	23
<i>Miscellaneous</i>	
Dental Associations	1
Pediatric Society	1
Red Cross	5
	<hr/>
	7

VISITING NURSE ASSOCIATIONS

In analyzing the work of the nursing organizations, Miss Beatrice Short comments as follows:

"New program developments include prenatal, delivery, bedside care for communicable disease cases, mental hygiene, orthopedic, nutrition and group teaching services. New emphasis has been given to the educational phase of all nursing service. Group teaching methods are being used by a number of organizations in promoting their maternity and child welfare programs.

"An interesting feature is the growth and development of hourly nursing service and service on a pay basis. A definite tendency is noticeable to provide generalized nursing service.

"The nursing staffs of these associations show a marked increase in size. Whether this increase is in excess of the increase of the population served is not apparent. The reports show a decided effort on the part of the organizations to give to their communities better nursing service through raising the qualifications for their staff members and through definite plans for providing better preparation for nurses in service. These plans include intensive courses during the probationary period and lectures to nurses in service and the release of nurses to go away and take public health nursing courses."

HEALTH CENTERS AND CLINICS

This group of agencies reflects the same changed emphasis in public health work as that shown by the Visiting Nurse Associations. Most of these associations report increased personnel and services since 1920. They report new services chiefly in the hygiene of maternity and the preschool child, with extension of services for the infant. Many associations report increased educational work with mothers. The increased attention to the mental hygiene of the child is also indicative of the effort of the associations to keep abreast of recent findings in the field of mental health.

EDUCATIONAL ORGANIZATIONS

While the majority of agencies emphasize the educational part of their work, 23 organizations and institutions are included in an educational organization group. They are as follows:

California	Mothers Educational Center Association	Los Angeles
District of Columbia	American Association to Promote the Teaching of Speech to the Deaf	Washington
Illinois	Elizabeth McCormick Memorial Fund	Chicago
Massachusetts	Boston School of Physical Education	Boston
Michigan	Merrill-Palmer School	Detroit
Missouri	Missouri State Nurses Association	St. Louis
New York	Department of Hygiene and Preventive Medicine, Cornell University	Ithaca
	American Nurses Association	New York City
	Boy's Work Division, Young Men's Christian Association	New York City
	Child Study Association of America	New York City
	National Child Welfare Association	New York City
North Carolina	Caswell Training School (for the feeble-minded)	Kinston
Ohio	Public Health Federation	Cincinnati
	School of Nursing, Western Reserve University	Cleveland
Pennsylvania	Philadelphia Child Health Society	Philadelphia
	Pittsburgh Child Health Council	Pittsburgh
	White Williams Foundation	Philadelphia
	Swarthmore Chautauqua Association	Swarthmore
Tennessee	George Peabody College for Teachers	Nashville
Washington	Public Health League of Washington	Seattle

PARENT-TEACHER ASSOCIATIONS

District of Columbia	National Congress of Parent-Teachers	Washington
Massachusetts	Massachusetts Parent-Teacher Association	Boston
Rhode Island	Rhode Island Branch of the National Congress of Parents and Teachers	Auburn

REPORTS OF AFFILIATED AGENCIES

CALIFORNIA

STATE BOARD OF HEALTH, BUREAU OF CHILD HYGIENE, SAN FRANCISCO

The bureau was organized in 1919. The state budget of \$20,470.00 was matched by Sheppard-Towner funds to the amount of \$20,470.00 and a gift of \$5,000.00. In 1925 the types of work have been educational through lectures, exhibits and distribution of literature; organizing and conducting child health conferences through the work of part-time public health nurses. In 1920 the bureau began its work and conducted child health conferences in rural areas with the bureau's own staff. At present the work is organizing in local communities so that they conduct their own work.

Berkeley

BERKELEY HEALTH CENTER

The center, organized in 1906 aims to provide (1) free medical and dental care to people unable to pay a doctor or dentist, regardless of race, creed, or color; (2) preventive and educational health service to anyone regardless of financial status; (3) public health nursing, including bedside nursing in the homes; preventive services to well people regardless of financial status and also curative services to sick people unable to pay a private physician. The budget for 1926 is \$51,089.66 and the funds come from the City of Berkeley, Alameda County, and from the Community Chest of Berkeley.

In 1920 more treatment services were given than preventive. Then public health nursing was a separate organization just beginning work. There was no Community Chest, hence there was less correlation of work of all agencies. Then much time and effort were needed to raise the money. In 1925 the preventive services were extended to include anyone in Berkeley. Standards of eligibility approved by the County Medical Association were adopted. The budget was increased 100 per cent and is obtained through taxes from the City of Berkeley, the County of Alameda, and from the Community Chest.

The change in name from Berkeley Dispensary to Berkeley Health Center is an evidence of the progressive policy of the organization. Further changes include: the addition in 1924 of a medical director; adoption of standards of eligibility for free medical treatment; increase in treatment services; undertaking more intensive medical social case work and more preventive work, especially in pediatrics, neuropsychiatry (including child guidance), tuberculosis, health examinations, cardiac and allergy clinics. The correlation of all health work in Berkeley is advanced by having the full-time health director in the public schools, as medical director of the Berkeley Health Center. The organization of public health nurses is being taken over as a department of field service of the health center. These nurses also do the school nursing and communicable disease work for the health department, each doing the generalized nursing in

her own district. In addition, they give their field training to the students in public health nursing of the University of California.

Long Beach

LONG BEACH DAY NURSERY

The nursery was opened in November, 1912, and aims to give physical, mental and moral care to babies over one year of age and to preschool, kindergarten, first, second and third grade children out of school hours. The budget for the current fiscal year is \$9,000.00 which comes from the Community Chest, parents' fees and voluntary donations. In 1925 the types of work included training the babies to feed themselves, to take regular naps, and to play happily with each other. Preschool children were told stories and were taught songs, rhythm, how to play games and to do simple construction work. Similar instruction was given to kindergarten children. Older girls were taught sewing, light household duties, and rhythm, and stories were read to them. Older boys were taught outdoor duties in addition. All are taught the courtesies of life. In comparison with work done in 1920 more careful attention has been given to grouping, more construction work has been done, rhythm has been added, and more nursery school work with children of preschool age; more detailed physical examinations have been made before admittance. The staff is better equipped and a school nurse visits regularly.

Los Angeles

MOTHERS' EDUCATIONAL CENTER ASSOCIATION

The association was organized in May, 1916, and aims to raise to the highest pinnacle the profession of motherhood, and to insure children their right to the fullest potential development, mentally, morally, and physically, through educating the mother. This service does not invade the field of medicine. The budget is \$11,410.00 and comes from the Community Chest and memberships from mothers.

The following types of work were going on in 1925: 17 branch centers and 6 divisions of work which include prenatal instruction, character building and conduct, nutrition, posture and growth, home budget and research, paidology clubs. The total attendance was 29,090.

In 1920 there was the Baby Week celebration, and the work of only three divisions including nutrition, posture and growth, and character building and conduct. In the past five years changes have included the idea of saving children through educating the parents, also the placing of each division under the leadership of trained people from Class A universities. Large groups of educated mothers have been interested in child training and diplomas have been awarded to those who passed the examination.

Oakland

ALAMEDA COUNTY TUBERCULOSIS ASSOCIATION

The association was organized in 1908 and its aims are the study, prevention and relief of tuberculosis. The budget for 1925, estimated at \$30,920.00, comes from the Community Chest, memberships, seal sale, and private donations. In 1925 the following were the types of work: annual Christmas Seal sale held to continue building program at preventorium for pre-tubercular children of Alameda

County—the Del Valle Farm Preventorium, Livermore, California; the maintenance (out of Community Chest budgets and other funds allotted this association) of all-the-year-round work of Del Valle Preventorium, with its capacity of 48 children: help given in financing a health room in a public school, conduct of a survey of health conditions in the public schools of Emeryville, California; health education propaganda by means of the press, and by sending speakers to schools, clubs and so forth. The association is now in a transition period. Prevention, rather than actual care of patients, is being stressed at the present time. The clinical care of patients is being turned over to the Public Health Center of Alameda County.

San Francisco

BABY HYGIENE COMMITTEE OF THE AMERICAN ASSOCIATION OF UNIVERSITY WOMEN

The committee aims to educate the mother in the physical care of children through nutrition conferences, prenatal conferences, posture and behavior classes. The budget for 1926 is \$6,973.00, the funds coming from the Community Chest. The organization maintains visiting nurses who demonstrate scientific methods of health preservation for children, and who give postnatal care as soon as the mothers leave the hospital.

In 1920 only feeding conference work was carried on in the center. During the past five years the scope has been greatly enlarged to include the posture and behavior work as well as prenatal and postnatal work. This last work we regard as a really significant contribution to health education, for our nurse is sent to any woman whose physician will apply for the service within 24 hours after she leaves the hospital. All this work is done through and with the coöperation of the hospitals. The theory underlying this piece of work is that the mother needs instruction in the care of her infant before she brings the baby to the center or calls her own physician. Needless to state the nurse gives no medical instructions or feeding advice, merely showing the mother how to bathe the baby and prepare the formula if the child is not breast fed.

Santa Barbara

SANTA BARBARA VISITING NURSE ASSOCIATION

The association was organized in 1908 and aims to make visiting nurse service available in the community and to further the interests of public health in all ways possible. The budget for the current fiscal year is \$14,000.00 and comes from the Community Chest. In 1925 bedside nursing, prenatal care and pre-school work were all carried on. Assistance was given to the health department and the schools in communicable disease control. More preventive and educational health work was done.

COLORADO

THE STATE CHILD WELFARE BUREAU, DENVER

This bureau was organized in July, 1919, its aim being to assure ideal parenthood, with healthy, happy children. The budget for the current fiscal year is \$19,000.00, of which \$15,000.00 is for Sheppard-Towner work, \$4,000.00 for child welfare. Funds are provided by state appropriation every two years. In 1925

the bureau held state-wide conferences, mothers and little mothers' classes and classes for midwives; help was given to the feeble-minded and to the crippled; hospitalization of the needy sick was provided. In 1920 the entire work of the bureau was organization of groups to care for the child welfare work in their own communities. In 1925 it had developed into general welfare work for mothers and children. From distinct organization of Parent-Teacher Associations, our work has now grown to be a state-wide work in health education, and includes the supervision of the mentally and physically defective child.

Denver

THE COLORADO TUBERCULOSIS ASSOCIATION

The association was organized in 1908 and aims to promote public health and to prevent tuberculosis. The budget of \$50,000.00 comes from the Christmas Seal sale and from the Community Chest. In 1925 school nursing demonstrations were given; health education was carried on in the schools; tuberculosis surveys were made; and traveling health clinics were held. The association has won over the citizens of the state to the extent that most of them recognize the association as a leading authority in matters of health education because of the quality of service it has been able to give.

THE DENVER TUBERCULOSIS SOCIETY

The society, organized in 1918, aims to relieve those afflicted with tuberculosis; to control and prevent tuberculosis throughout the City and County of Denver. The budget is as follows: from the Community Chest, \$23,400; Christmas Seal sale receipts, \$660.20; earnings, \$763.00; total, \$24,823.20.

The major portion of the work of the Denver Tuberculosis Society in 1925 has been given to an intensive health education demonstration along preventive lines. There were 38 formal health classes conducted with weekly meetings for a total enrollment of 1,500 children. Complete health examinations were given to 586 of these children. In addition to the classes held, 450 home visits were made. These classes were conducted in public schools, parochial schools, orphanages, and in an outpatient clinic. In addition to carrying on health education work for children, a health and information service was carried on by the organization and many boarding houses for the tuberculous were inspected and advice and instruction given. Talks were given to 84 adults and to children outside of the regular classes. During the year 63,214 pieces of literature were distributed. Research work was also carried on continuously.

The organization was only two years old in 1920 and was just beginning its work of trying to interest the schools in health examinations and in the weighing and measuring of children. Much effort was put forth in attempting to secure adequate sanatorium facilities for the City of Denver with fairly satisfactory results. The work has grown greatly in the last five years. It has been possible to undertake health education demonstrations of an intensive nature and to secure effective publicity as to the results. We are still working for more adequate sanatorium facilities for our tuberculous and for a special building for children.

VISITING NURSE ASSOCIATION

The association was organized in 1898 and incorporated in 1904. It aims to nurse the sick and to promote health. The budget of \$53,490.00 comes from the Community Chest, earnings and donations. In 1925 general bedside care was given, and communicable disease, tuberculosis and infant welfare work was done. During the past five years the service has changed from a specialized to a generalized service.

CONNECTICUT

STATE DEPARTMENT OF HEALTH, BUREAU OF CHILD HYGIENE,
HARTFORD

The Bureau of Child Hygiene was organized in July, 1919. Its funds are received from legislative appropriations. All forms of child hygiene work were being done in 1925, and more intensively than in 1920 due to an increase in demand by the different communities.

STATE BOARD OF EDUCATION, DIVISION OF HEALTH AND PHYSICAL
EDUCATION, HARTFORD

In 1925 the work included the promotion of all phases of school health work including professional aid to teachers and nurses; propaganda in extending the field; expansion of health education curriculum in normal schools; advisory affiliation with State Congress of Parent-Teacher Associations, and an extension course for school nurses. In 1920 there was no legislation providing for instruction in hygiene and health education. School hygiene and instruction in hygiene were carried on by the Division of Rural Education. In the last five years there has been a more sympathetic attitude on the part of school and public authorities. There has been an increase in the number of school physicians, dentists, nurses and school hygienists.

Bridgeport

DEPARTMENT OF PUBLIC WELFARE, SOCIAL SERVICE DIVISION AND MEDICAL SOCIAL
SERVICE DIVISION

The Department of Public Welfare carries on its charity work under these divisions. The care of neglected, dependent children, child placing and guardianship are assigned to the Social Service Division. Hospital and prenatal care is provided; tubercular contacts are supervised by the Medical Social Service Division. Since 1920 there has been considerable increase in the amount of work done.

VISITING NURSE ASSOCIATION OF BRIDGEPORT

The association was organized in 1910 and aims to provide trained nurses for the benefit and assistance of those unable to secure skilled care in time of sickness; to give instruction as to the care of the sick; to teach the laws of hygiene, sanitation and of healthful living. It is supported by and serves persons of all creeds, nationalities and colors. The budget of \$51,294.00 comes from pay patients, insurance company payments, tuberculosis Christmas Seal sale, industries and financial federation. In 1925 the work included prenatal, obstetrical delivery, postpartum care; medical and surgical tuberculosis work; health teaching; opening

of Hemlocks health-building camp to children from 3 to 15 years of age. Within the past five years infant hygiene work has been transferred to the city health department. There has been a definite growth each year in the nursing service, especially in the development of the prenatal service, a supervisor having been appointed for that work. The association has become a part of the Financial Federation.

Hartford

REPORT OF THE DAY NURSERY, UNION FOR HOME WORK

The day nursery cares for children from 6 months to 8 years of age whose mothers are employed away from home. These mothers are widows, deserted women, or women with sick husbands. In some cases we do take children where the father and mother are both working, the father's income not being sufficient to support the family. Each family's reference is looked into. A nominal fee is charged.

The nursery is open from 6:30 in the morning until 6:30 at night. Three meals are served daily; all children under 3 years of age are bathed daily; naps are taken during the afternoon; and in fact the same care is given these little children as should be given in a well regulated home. Children of school age go to the public school, and for preschool age children there is a kindergarten in the morning, and recently a nursery school has been established. The nursery is under the supervision of the public health nurses. A medical examination is required before the children are admitted. A nurse visits each morning and all defects are promptly attended to. Each child is weighed and measured each month. The children go to the dispensary for the dental clinic and any special examination. In cases of illness they are sent to the Hartford Hospital. There is a careful record kept of each case. These nursery families are carefully considered and where assistance is required beyond the income earned the Union arranges what shall be given. If not able to provide a sufficient amount of relief it seeks coöperation from other relief giving agencies.

The total number of children in the day nursery for the year 1925 was 9,278, including 3,385 babies under 3 years of age. The amount of admissions paid in by the mothers of these children was \$1,519.40. The total expense of the day nursery was \$7,659.01.

This is only one branch of the Union for Home Work. We are interested in the children of all the families to whom we give relief. We are a relief giving agency and our acquaintance with many families makes it possible for us to extend our interest to a very large number of children.

Middletown

DISTRICT NURSE ASSOCIATION

The association was organized in 1900 and aims to care for the sick in their homes and to promote health by teaching well people how to keep well. The budget for the current year is \$22,068.00. In 1925 the work of the association included child welfare, prenatal care, tuberculosis work, general nursing, maternity service night and day, industrial nursing and school nursing. Other communicable disease work was undertaken at the discretion of the health officer. All except the two latter have been carried on since 1920. The number of baby conferences has been increased from two to four a week.

New Haven

THE CRIPPLED CHILDREN'S AID SOCIETY

The society, formed in 1914, aims to aid in the relief of crippled children by affording them material assistance in providing medical and surgical services; in supplying necessary orthopedic appliances; and in providing such further means of hygienic and social uplift as may tend to remove the handicap to the children's welfare and happiness which their unfortunate situation has imposed. The budget is \$13,500.00, the fund coming from the New Haven Community Chest and membership subscriptions. In 1925 special care was given to spinal cases; seven children were freed from the use of braces through operative work; and early attention was given to the correction of rachitis by carefully supervised advisory care, use of cod liver oil and sunshine. The following changes in work have occurred within the past five years: segregated care to convalescent cases through the coöperation with the Children's Community Center and special classroom for children during convalescence; the establishment of a special spinal clinic; provision of a quartz light used in treatment of rickets, osteomyelitis and tuberculosis; closer follow-up supervisory work with more concise record notes through increase in personnel; agitation to interest the Board of Education in providing a special classroom with transportation for crippled children. (This matter is being considered by the Board of Education at the present time.)

VISITING NURSE ASSOCIATION

The aims of the association are to provide skilled nursing care in the homes of the sick who are otherwise unable to secure such care for themselves; to teach prevention of sickness and home hygiene and to give the necessary instruction to the family regarding the patient. The budget of \$115,000.00 comes from the Community Chest, Endowment Fund, insurance companies, patients, special contributions and from sale of Christmas seals. The following types of work were done in 1925: bedside care; child hygiene; tuberculosis, both bedside and educational, in the nursing department; and in the home economics department, to teach the family how to budget, how to prepare proper food, and how best to care for the family. In 1920 the association specialized, one group of nurses doing tuberculosis, one doing child welfare, and one doing bedside nursing. In 1925 one nurse had a district caring for all the families in her district. In the past five years the association has changed from specialized to generalized nursing and has also come into the Community Chest.

YALE PSYCHO-CLINIC

The organization formed in 1911 has a psycho-clinical and child guidance service. The funds come from the university budget. In 1925 mental examinations were made of children referred by some 25 community organizations and social agencies; developmental examinations were made of infants and preschool children at the Yale Polyclinic and the New Haven Hospital; there were investigations of norms of development; an investigation was undertaken of the problems and methods of parental guidance in relation to infant training; and there was a study of psycho-clinical guidance in the control of child adoption. The chief difference in the type of work done in 1925 consists in the increasing emphasis on work with children of preschool age. Among the changes since 1920 in the

work of the clinic, the following is to be noted: community agencies, like the Visiting Nurse Association, are showing a greater interest in mental and behavior problems of very young children and are referring cases for diagnosis and guidance at a much earlier age than hitherto. This may be regarded as a significant change because it implies greater emphasis on preventive aspects of mental hygiene. The importance of these developmental examinations of infants prior to adoption and placement is increasingly recognized by child placement agencies.

Stamford

VISITING NURSE ASSOCIATION

The association was organized in 1912 and aims to give greater service to the community in the prevention of illness and the care of the sick. The budget for the current fiscal year is \$16,000.00 which comes from voluntary contributions, insurance companies for services rendered to policy holders, and proceeds from sale of tuberculosis Christmas Seals. In 1925 the work included prenatal and postnatal care; orthopedic and dental clinics; child welfare and tuberculosis work in clinics as well as home visits. In the past five years there has been an improvement in all lines of work as well as a marked increase of work done.

Waterbury

WATERBURY VISITING NURSE ASSOCIATION

The association, formed in 1903, aims to give skilled nursing care in the homes, to instruct the families in personal hygiene, sanitation and the prevention of disease. The budget for 1926 is \$34,000.00, which comes from earnings, invested funds and contributions. In 1925 there was a service including bedside nursing; prenatal care, including a clinic; obstetrical delivery service; well baby home visits; well baby conferences; Little Mothers' Leagues. Since 1920 the care of communicable disease has been included in the bedside nursing; the prenatal clinic and the obstetrical delivery service have been added. Work has been toward a complete program of maternity care.

The number of staff nurses has increased from 10 to 14 but has not kept up with the demand for service. An attempt has been made to meet this situation by a greater emphasis on home visiting in the early months of life with few home visits for the normal baby in the later months, and by putting a greater emphasis on the responsibility of the mother in taking advantage of the opportunities for supervision and consultation offered her through the well baby conferences. The number of baby welfare stations has been increased from three to six. These are held in different sections of the city and each station is open one afternoon a week.

DELAWARE

STATE BOARD OF HEALTH, DIVISION OF CHILD HYGIENE, DOVER

In 1919 the division was organized as a reconstructed commission. The budget for the current year is \$36,000.00, of which \$25,000.00 comes from the state, the remainder from Sheppard-Towner funds. In 1925, the types of work included prenatal, preschool, and well baby clinics, also the supervision of midwives and of maternity homes. In the past five years there has been increased generalized nursing service to rural communities.

DISTRICT OF COLUMBIA

Washington

AMERICAN ASSOCIATION TO PROMOTE THE TEACHING OF SPEECH TO THE DEAF

The association was organized in 1890 and aims to aid schools for the deaf in their efforts to teach speech and speech-reading and to aid in the prevention of deafness. The budget for the current fiscal year is \$20,000.00, which comes from endowments, memberships, advertising in magazine and the sale of books. During 1925 literature was published and distributed on behalf of the deaf and deafened; information was furnished by letters to scores of inquirers, and addresses were delivered to acquaint the public with the work. The work as compared with that done in 1920 is much the same, but the association is affiliated and is in touch with more social and educational organizations, and the public is better informed about the work; a great deal more is being done for the hard of hearing child in the public schools.

CHILD WELFARE SOCIETY, CHILDREN'S HOSPITAL

The society was organized in 1901 and aims to develop and preserve child life and to educate parents. The budget is \$6,000.00 and comes from dues, donations and endowment. In 1925 infant and preschool welfare conferences were held and nutrition classes and food demonstrations were extended during the past six months to include school children up to 13 years of age. Changes in the past five years show that more attention has been given to the neglected preschool child and to an expansion of the work for the school child. More emphasis is being placed on prevention, and on teaching the rules of health, while treatment is being entirely eliminated.

NATIONAL CONGRESS OF PARENTS AND TEACHERS

The congress, formed in 1897, aims to promote child welfare in the home, school, church, and community; to raise the standards of home life; to secure more adequate laws for the care and protection of women and children; to bring into closer relation the home and the school, that parents and teachers may coöperate intelligently in the training of the child; to develop between educators and the general public such united effort as will secure for every child the highest advantages in physical, mental, moral, and spiritual education. The budget for the current fiscal year is \$55,000.00, the funds coming from life memberships, contributions made for extension work on Founders Day, and by associations in membership dues.

In 1925 the work was of the following types: demonstration of state-wide parent-teacher coöperation in rural schools in North Dakota; campaign in 30 states to send to school in the first grade, children 100 per cent free from remediable defects; organization and conduct of classes in training for parenthood and the study of the preschool child; campaign for the promotion of education in social hygiene; active and successful campaign against illiteracy in 32 states; printing and free distribution of large quantities of educational literature on health, physical education, mental hygiene, home education, children's reading, home economics, kindergarten extension, safety, recreation and other activities for the welfare of children. This organization also coöperates with other organizations.

Before 1920 the congress was chiefly concerned with an extension of the organ-

ization of Parent-Teacher Associations. Since 1920 more heed has been paid to the following: promotion of definite projects; serving as a channel for dissemination of material of coöperating organizations and forwarding of their activities; development of public support for the school system, and coöperation with it; education of parents in the care and training of children; definite action in regard to motion pictures, juvenile protection, legislation for child welfare and recreation. In the past five years per capita membership has increased from 193,000 to more than 950,000; state branches have increased from 37 to 48; the congress has come to be recognized by educators and the medical profession as an educational movement, not an organization of clubs; there has been a rapid increase of membership among men. There has been also a complete reorganization into departmental system.

FLORIDA

STATE BOARD OF HEALTH, BUREAU OF CHILD WELFARE AND PUBLIC HEALTH NURSING, JACKSONVILLE

This bureau was first organized in 1915 but in 1922 it was reorganized on the present basis. The budget for the current year is \$53,055.96 which comes from the state and from Sheppard-Towner funds. In 1925 the work included: maternal and infant hygiene instruction and demonstration; birth registration; neighborhood institutes; campaign for examination of preschool children; instruction, inspection, examination and supervision of midwives; examination of school children in one and two teacher country schools; control of communicable diseases; general educational work; a movie truck with health films and talks; and a hookworm campaign by communities, taking the family as a unit.

In 1920 the only work carried on by the Bureau of Child Welfare was a travelling trachoma clinic and the examination of school children.

In the past five years significant changes have been noticed in the awakening of the lay public to the need for public health work; in the employment in 1925 of 85 public health nurses as against 16 in 1922; and in the establishment of 3 full-time county health units with a full-time county health officer in charge.

ILLINOIS

Chicago

AMERICAN DENTAL ASSOCIATION, DEPARTMENT OF DENTAL HEALTH EDUCATION

This association was organized in 1859. The Department of Dental Health Education was formed in 1924 and aims to assemble and distribute literature on dental health, to organize state committees on mouth hygiene within the dental societies and to suggest programs. The funds come from dues paid to local, state and national associations by ethical dentists belonging to them.

AMERICAN NATIONAL RED CROSS—CHICAGO CHAPTER

The chapter, organized in 1925, aims to furnish volunteer aid to the sick and wounded of the Army and Navy in time of war; to act as a medium of communication between the people of the United States of America and their peacetime Army and Navy; to advise and render assistance to soldiers, sailors and marines disabled through service to the United States Government in any war;

to collect funds and insure proper administration thereof for immediate relief in disasters; to give instruction in life saving, first aid and home nursing. The budget for the current year is \$157,191.00, the funds coming from the annual roll call. In 1925 there were the following types of work: service and relief to compensable ex-service men; canteen in Washburne School; department of volunteer service maintained; nursing registration bureau; instruction in first aid, life saving and home hygiene and care of the sick; transcribing of Braille; service through Junior Red Cross; preparedness for immediate action when disaster occurs.

CHICAGO LYING-IN HOSPITAL AND DISPENSARY

The dispensary was incorporated in January, 1897, and aims to provide good medical and nursing care for women at the time of confinement. Physicians and nurses are instructed in the art of obstetrics. The funds come from endowment and subscriptions, the budget for the current fiscal year being \$328,812.00. Prenatal, maternity, postnatal and baby welfare work were done in 1925. The type of work in 1925 as compared with that done in 1920 is the same, though the amount of work in the last five years has nearly doubled.

ELIZABETH MCCORMICK MEMORIAL FUND

The fund was established in 1908, the object being to improve the condition of child life in the United States. The funds come from private endowment. Nutrition work, health education in the schools, research and library service were the types of work done in 1925.

INFANT WELFARE SOCIETY OF CHICAGO

This society, organized in 1910, aims to reduce the infant death rate and to improve the health of the coming generation by keeping the baby well before its birth by caring for the mother, and after its birth by teaching her how to feed and care for her child. In 1925 work has included the child from 2 to 6 years of age. A staff of dietitians has been developed to carry on the work with these children. Since 1920 the budget has been increased from \$107,216.74 to \$160,000.00. The number of prenatal clinics has been increased from 3 in 1920 to 8 in 1925.

Freeport

AMITY SOCIETY

This society, which was organized in 1883, aims to provide milk in schools, and does infant welfare work. The budget of \$4,000.00 comes from public subscription, an annual drive, a charity ball and milk bottle collections. The society now has a preschool kindergarten in the colored section. Prenatal and orthopedic clinic work is being done. In 1925 the work is being done on a much larger scale. The infant welfare department has progressed steadily since 1920.

La Salle

HYGIENIC INSTITUTE FOR LA SALLE, PERU AND OGLESBY

This institute was organized in May, 1924, and acts as the health department for La Salle, Peru and Oglesby. The budget for the current fiscal year is \$24,270.00. The funds are received from the following sources: endowment, \$387,000.00; school boards, \$1,600.00 yearly; tuberculosis society, \$1,500.00 yearly.

Communicable disease control, sanitation, laboratory, school nursing and infant welfare stations are included in the types of work done in 1925.

Springfield

CITY HEALTH DEPARTMENT, BUREAU OF CHILD HYGIENE

The bureau was organized in February, 1916. The budget for the current fiscal year is \$10,190.00, coming from the city and \$3,000.00 from the Council of Social Agencies. In 1925 the work included infant welfare, preschool clinics and home visiting.

INDIANA

STATE BOARD OF HEALTH, DIVISION OF INFANT AND CHILD HYGIENE, INDIANAPOLIS

The division was organized October 1, 1919. The budget for the current fiscal year is \$46,500.00, of which \$20,750.00 was set aside from the total appropriation to the State Board of Health and matched by a like sum from the federal appropriation. The federal government also gave an unmatched \$5,000.00. The work being done in 1925 included routine work in mothers' classes, baby conferences and baby health centers. Special work included the organization for state fair contests, health center demonstrations, health work in Winona Lake Chautauqua, lectures, exhibits, demonstrations, and the distribution of literature. In 1920 county-wide baby conferences were held in 7 counties and assistance was given to local groups although there were no mothers' classes held and no baby centers directly organized by the division. By the end of September, 1925, baby conferences had been held in the 92 counties in the state and 5-weeks courses in maternal and infant care given to mothers' classes in 48 counties. Baby centers were started as demonstrations in several parts of the state, and with assistance a number of new centers were established. There has been an increasing demand for more lectures and more health literature. Pamphlets have been more generally distributed throughout the state. The work of the division has helped to lower infant mortality and has reduced active infectious disorders two-thirds.

Elkhart

ELKHART CHAPTER RED CROSS NURSING BUREAU

This chapter was organized in 1919 and aims to educate the community in health matters; to furnish visiting hourly nurse service; delivery service in homes; to supervise prenatal patients, tubercular patients and school children. The budget for the current fiscal year is \$9,600.00. The funds come from direct nursing fees, delivery fees, tuberculosis Christmas Seal sale, classes, Community Chest, donations and insurance companies' contracts. Trained counsel, service and relief are given to veterans of Civil, Spanish and World Wars. Legal papers are executed, bonus claims filed, compensation and vocational training awards secured for disabled ex-service men. These services are given without charge. There is a general visiting nursing service which includes maternity, prenatal, delivery and postnatal care; tuberculosis nursing, including bedside care and instructive visits; bedside care in surgical, medical and chronic cases; also, school nursing in public and parochial schools, including work for correction of defects, health instruction and the control of contagious diseases. The health

center distributes health information and literature; conducts a loan-closet of articles needed in sickroom; provides glasses and dental work for children unable to pay; has classes in home hygiene and care of the sick; conducts demonstrations in bedmaking, bathing the baby and in giving first aid. A registry of trained and practical help is maintained. Maternity dresses and layettes are supplied in cases of need. The organization began with hourly visiting nursing and bedside care, later took on school, tuberculosis, prenatal and delivery service. The staff now includes a working supervisor, 3 staff nurses and a secretary.

LEAGUE OF WOMEN VOTERS, BUREAU OF CHILD WELFARE

The bureau was organized in May, 1920. Very little preventive work is being done, very little vaccination, no toxin-antitoxin for diphtheria, but by discussing these matters with the mothers it is hoped that this work may be undertaken. The budget of \$2,400.00 comes from the Community Chest. In 1925 baby clinics and clinics for the child up to 6 years were held twice a week with a doctor in attendance. A clinic was held in each school once a month to reach mothers in outlying districts. Instruction in nutrition and preventive measures was given to all mothers. The bureau has undergone remarkable changes in the past five years. There are 2 nurses, 1 nutrition worker and more voluntary help. There are more clinics, and 4 doctors where there was only 1 in 1920 and the doctors are more coöperative. Mothers are coming to the clinic without the visit of a nurse, while in 1920 it was necessary for the committee to bring them in their machines. There are more mothers and they are coöperative and anxious to learn. An active committee of women work with the bureau, and they give time to help at the clinics and use their cars to convey nurses when visiting the homes.

Huntington

HUNTINGTON COUNTY TUBERCULOSIS ASSOCIATION

The association was organized in 1914 and aims to prevent and cure tuberculosis, which means health education in the schools, milk for undernourished children, tuberculosis clinics, hospitalization of tuberculous patients and so forth. The budget for the current fiscal year is \$2,200.00. The funds come from the Christmas Seal sale. In 1925 a county school nurse was employed. Tuberculosis clinics were held; patients were sent to state and county hospitals; milk and eggs were sent to home cases; the Modern Health Crusades were financed; milk was furnished to undernourished school children and propaganda on milk drinking in factories was sent out. In 1920 milk was furnished the school children and milk and eggs were sent to tuberculosis patients in the homes. The Modern Health Crusade was financed then as now. Propaganda for the mid-session school milk lunch was then the chief outside work. We originated the idea of the bottle with a straw. (The first report on this kind of work was published by the United States Bureau of Education in *School Life*, 1919.) In 1920 we were affiliated with no county tuberculosis sanitarium. To-day we have an appropriation of \$10,000.00 with which to hospitalize our patients. Then we were holding no tuberculosis clinics. To-day we hold one every five weeks. In 1920 our health education in the country schools was carried on by volunteer workers; to-day we employ a county school nurse. In 1920 we employed no lecturers on social hygiene; to-day we frequently bring them to the city.

Indianapolis

CITY BOARD OF HEALTH, CHILD HYGIENE DIVISION

The division was organized in November, 1921. The budget for 1926 is \$40,000.00 which comes from taxation. In 1925 the work included: baby health conferences or clinics for infants and preschool children; a dental clinic doing educational, prophylaxis and operative work through grade schools. This work has been extended since 1920 when there were 7 baby health stations and 7 clinics. In 1925 there were 9 stations and 11 clinics. In 1920 only 604 new babies were registered, while in 1925 there were 1,400. In 1920, 85 out of 1,000 births were registered in the clinic whereas in 1925, 206 were registered. In 1920 there were 340 cases completed at the dental clinics, while the number was 2,878 in 1925.

PUBLIC HEALTH NURSING ASSOCIATION

The association, which was organized in 1913, aims to provide graduate registered nurses to care for the sick in their homes and to instruct members of the household in the simple rules of nursing and hygiene; to teach the prevention of sickness; and to render such aid as is imperative. The work is intended to supplement and not duplicate nor interfere with that of the hospital or physician. The funds come from the Community Chest, insurance companies, industrial concerns, pay and part-pay patients, membership fees and special donations. The following types of work have been carried on in 1925: bedside nursing; care and instruction in infant feeding; child welfare; tuberculosis bedside nursing; antepartum and postpartum maternity nursing; routine school and kindergarten inspection and follow-up work; also a diagnostic clinic held in connection with our Americanization plan. Special training in the care of crippled children was given to a given number of nurses on the staff; home care of crippled children provided and transportation of these children to orthopedic, physiotherapy or other hospital or clinic. (The development of the work with crippled children, instituted by this association, has been furthered by the opening of the Riley Hospital for Children, a state institution. Also, the work has been aided by the opening of a room for crippled children in the public schools by the Board of Education, the special equipment of this room, the transportation, the nurse and the occupational therapist being provided by the Indianapolis Foundation, which also supports one of our especially trained crippled children nurses, and provides us with a car for this work.) A comparison of the work of 1920 with 1925 shows that standards have been raised in the nursing staffs; a teaching center has been opened for students of accredited schools of nursing, and for our own probationers.

IOWA

Des Moines

IOWA TUBERCULOSIS ASSOCIATION

The association was organized in 1915. It aims to promote public health; to coöperate with health forces; to work for health legislation; to reduce tuberculosis through educational and preventive methods; to carry on health education and the Modern Health Crusade; to promote and supervise public health nursing in the state; to hold tuberculosis and heart clinics; to work for the reduction of infant mortality; to engage in various forms of child health work. Since 1920

the scope of health education work has broadened; occupational therapy has been introduced in hospitals; more emphasis has been placed on legislation; a functioning organization has been secured in every county in the state; and a special campaign has been taken on for the relief of heart disease. Joint heart and tuberculosis clinics are now being held.

KANSAS

Wichita

CHRISTIAN SERVICE LEAGUE OF KANSAS

The Christian Service League was incorporated in 1908. The budget for 1925 is \$30,000.00. The league is an organization which conducts a state-wide service in receiving normal, placeable, dependent children, providing for them a temporary family boarding home, while their physical and mental health and needs are studied. When the children are ready they are placed in carefully selected permanent homes. The league cares for children when their parents are temporarily unable to provide a home for them. Parents may visit their children and take them back when they have reached a solution of the problem which led them to have the children cared for. This service is not free, but upon such terms as to be of great assistance in times of financial embarrassment or physical disability. The league accepts the care and supervision of older boys and girls who are without home ties, who are without parental discipline, provided they are not juvenile delinquents, and are in need of supervision in matters of education and vocation. The league offers to communities throughout the state, the assistance of its experienced workers in the solution of their local problems in child welfare. It seeks to rehabilitate families instead of separating their members.

There is a weekly clinic with a physician and public health nurses in attendance. All children under 2 years of age are brought in each week to this clinic in our own administration building. The babies are accompanied by the boarding mothers who are instructed in infant care by the physician and nurses. Infant feedings are prescribed by the physician and changed only under his instruction. The staff gives its services free of charge. There is a neurologist on our staff who with a psychologist gives psychiatric examinations to all of the older children. Our health work is extended to the children who are in our care temporarily just the same as though they were our wards. We have been making it a rule to hold all babies in our immediate care until they are 3 months old, so that we may place them with the guarantee that they have a negative Wassermann test and that they are firmly established in habit and feeding. During the past 3 years, we have not had a single baby returned on account of health condition. Only 1 was returned but that was because the home itself broke down. Sixty-two per cent of the cases handled this year were returned to parents or relatives, it being necessary to place permanently, in foster homes, only 38 per cent. We feel that this fact renders our work for this year distinctive in that we were able to help in the solving of so large a proportion of the problems which came to us so that the children involved could remain with blood relatives.

WICHITA PUBLIC HEALTH NURSING ASSOCIATION

The association was organized in 1919. The Wichita Public Health Nursing Association is a field hospital furnishing skilled nursing care to the sick in their

own homes. After the first visit no nursing care is given in any home unless a physician is in attendance, who has given orders for the care of his patient. The budget for 1926 is \$32,000.00, the funds coming from contributions and memberships, tax levy, paid service and participation in the Community Chest. The following types of work were carried on in 1925: bedside care of acutely ill; infant welfare; preschool age; tuberculosis; communicable disease; care at time of confinement; 3 well baby clinics a week; and a clinic for undernourished babies held every day during the summer months. There has been a decrease in communicable disease work since 1920 and a marked increase in the number of mothers receiving care at the time of confinement and nursing care after confinement. There has also been a marked increase in the attendance at all baby clinics and at both prenatal clinics. There is a wider demand for the services of the nursing association and a better understanding by the public of its aims and benefits. This has resulted in more support and coöperation by the public.

KENTUCKY

STATE BOARD OF HEALTH, BUREAU OF MATERNAL AND CHILD HEALTH, LOUISVILLE

The Bureau of Maternal and child health was organized in April, 1922. The budget for the current year is \$47,597.00. One-half of this amount comes from federal funds and the other half from the state. In 1925 the work included advising and supervising existing preschool child health centers and prenatal clinics and organizing new ones; conducting demonstration child health conferences in communities where there is no organized health work; stimulating birth registration by visiting registrars in the state; supervising midwives and holding classes for their instruction; conducting child health classes for mothers; nutritional education for mothers in relation to children; community demonstrations through county fairs, exhibits and so forth. In the past three and a half years, 35,000 preschool children have been examined; 150,000 older children have been given health instruction; 96 midwife classes have been held which have been attended by 866 midwives, 182 permanent child health conferences have been established. Before the bureau was organized health work for children was carried on only in Louisville and Lexington. The state-wide program has been developed since 1922.

Louisville

NEIGHBORHOOD HOUSE

This house was opened in 1896, the aims being to influence personal character by furnishing a social and intellectual center for the neighborhood through its clubs, classes and other activities, and by close personal touch with the neighbors through visiting and performing any neighborly office for which there is need. Another aim of the settlement is to improve the environment, which it does by allying itself with organizations for civic betterment whose benefits react on the neighborhood. The budget for the current year is \$33,303.00, of which \$29,681.00 comes from the Community Chest, the remainder from beneficiaries and the board of residents. The Neighborhood House offers gymnastics, dramatics, handicrafts, library, folk dancing and various clubs and classes. There is a citizenship class for adult foreigners, a children's department and a music school. In addition

there are general social gatherings. In the past five years the work in the settlement has become more departmental. During the past year adult activities have been concentrated in an adult department, and so with the other various departments, boys', girls', and children's departments. A dramatic department was established in order that the better things in dramatics could be presented by and for the Neighborhood House Club and for class members.

PUBLIC HEALTH NURSING ASSOCIATION

This association was organized in January, 1920, and aims to provide skilled nursing care for the sick in their homes and to decrease infant mortality. The budget for the current fiscal year is \$66,943.00. The association is supported by city appropriations, funds from the Community Chest, fees and insurance company contracts. The types of work carried on in 1925 included infant welfare work, general bedside nursing of the acute and chronically ill, prenatal work, limited delivery service and the health supervision of certain orphanages and day nurseries. The three latter services have been added since 1920. There has been a tendency toward generalization in the program of the association during the past five years. This has been tried out in an experimental way in certain districts and then extended as the results seemed to warrant.

LOUISIANA

STATE BOARD OF HEALTH, DIVISION OF MATERNITY AND INFANCY, NEW ORLEANS

The bureau was organized in 1924. The budget for the current fiscal year is \$17,129.80 from the State Board of Health, matched by a like sum from Sheppard-Towner funds, and an unmatched sum of \$5,000.00. The types of work done in 1925 include clinics for the examination of infants and children of preschool age; organization of mothers' and little mothers' clubs; talks to children in grammar and high school; dental examination and dental care of children of preschool age; class and individual instruction of midwives; distribution of nitrate of silver; toxin-antitoxin for preschool age children; letters and literature to prospective mothers. A comparison of the type of work in 1925 with that done in 1920, shows that work has become more definite as to training mothers and school age children in health habits. More attention is paid to the examination and care of infants, and to the children of the preschool age.

New Orleans

CHILD WELFARE ASSOCIATION

The association was organized in 1913 and aims to provide public health nursing in the homes for children and adults; complete maternity care for mothers; heart and lung service for both white and colored. The budget for 1926 is \$81,000.00, the funds coming from the Community Chest, city of New Orleans, and earnings. In 1925 prenatal clinics, postnatal clinics, dental clinics and heart and lung clinics were held; also, public health nursing, both instructive and bedside service was given children and adults. Complete maternity service was offered, including deliveries in the home where the doctor as well as the nurse is on the staff of the association. In addition to the above mentioned forms of service there has been a distinct increase in the scope of the work since the Community Chest was established. The

maternity service is probably the most distinctive service rendered by the association. In our 20 prenatal clinics, scattered over the city, weekly clinics are held with a doctor in charge assisted by 2 nurses. Mothers under their care are asked to attend these clinics once a week up to the seventh month, after which time they are visited once a week or more frequently at need, in their homes by the nurse. At the time of delivery, the same doctor and nurse who have attended them at the prenatal clinic, will go into the home, bringing with them all needed medical and sterile supplies. After delivery, the obstetrician returns to see the mother not less than 3 times. The nurse gives daily care for 9 days. The pediatrician comes within the first 24 hours to give the baby a careful physical examination and returns at need. From January to November, 1925, this service delivered 765 mothers.

MAINE

Portland

PORTLAND BABY HYGIENE AND CHILD WELFARE ASSOCIATION

This association, which was organized in 1919, aims to promote child health in the community. The budget for the current fiscal year is \$9,000.00. The funds are raised by annual subscriptions and by board members in various ways such as fairs, rummage sales, sale of Christmas cards. In 1925 a day nursery was maintained, also milk stations and a clinic for children. Nutrition work was carried on in the public schools. Since 1920 the new up-to-date nursery has replaced an old one; the milk station has been taken over by the Board of Health of the city, with an advisory committee from the association. The city has paid the salary of the supervising nutritionist and the association pays an assistant. All the work of the association has grown and developed.

MARYLAND

Baltimore

CITY DEPARTMENT OF HEALTH, BUREAU OF CHILD WELFARE

The bureau was organized in 1902. The budget for the current fiscal year is \$62,380.00, coming from tax levy. In 1925 the work included: baby welfare and preschool clinics; visits by nurses to all new-born babies and to babies 1, 2 and 3 years old; obstetric service embracing 5 prenatal clinics and the delivery of patients registered in these clinics; day nursery for colored children; dispensary for sick children; 32 toxin and antitoxin clinics were established. In the past five years the work has expanded, more clinics have been opened and the obstetric service has been enlarged. There has been closer supervision of smaller institutions. Not having a sufficient number of nurses to visit all new-born babies a system has been adopted of sending postcards to certain homes in which there was less need of a nurse's visit than in other homes, asking mothers to say whether or not it was necessary for nurses to call.

THE BABIES' MILK FUND ASSOCIATION

The organization was formed in 1904 and aims to do educational and preventive work. Prenatal, obstetrical, postnatal and preschool work has been done. The budget for 1926 is \$55,128.00, the funds coming from public subscriptions as a member of the Baltimore Alliance. In 1920 there were 26 clinics weekly, under

8 physicians and 22 nurses. In 1925 there were 51 clinics under 14 physicians and 30 nurses. Additional obstetrical work has been undertaken, and preschool clinics have been opened since 1920.

COUNCIL MILK AND ICE FUND

This fund was organized in 1899, the aims being to feed undernourished infants, children and aged poor the amounts of milk ordered by physician or nurse. The budget of \$65,000.00 for the current fiscal year comes from the Associated Jewish Charities and private donations. In 1925 provision was also made for expectant mothers. Ice has been furnished by the association.

JEWISH CHILDREN'S BUREAU

This bureau was formed in January, 1914, and aims to secure close coöperation among the organizations working for Jewish children in Baltimore. The bureau has jurisdiction over children who have to be treated apart from their families, in behalf of whom application has been made for institutional or foster home care or placing them for adoption. The budget for the current year is \$9,500.00, funds coming from the Associated Jewish Charities of which the bureau is a constituent member. In 1925 the bureau conducted the following: case work with children in their own homes; a psychiatric clinic for tests and treatment of children under the care of the constituents of the Associated Jewish Charities; placement of children away from their own homes; court work for Jewish children under 16 years of age; vocational guidance and placement; a scholarship bureau; and in addition the bureau obtained contributions from friends and relatives of the children toward their support. Since 1920 greater stress has been put upon diagnosis before placement; there has been more effort to keep the children in their own homes; and on the placement of normal children in normal homes. Psychiatric tests for vocational guidance and a scholarship bureau have been organized in the past five years.

MASSACHUSETTS

STATE DEPARTMENT OF HEALTH, DIVISION OF HYGIENE, BOSTON

The division was organized in 1915. The budget for the year ending November 30, 1925, was \$83,891.00, which was received by state appropriations. The types of work done in 1925 included maternal, infant and school hygiene, nutrition, mouth hygiene, health education and publicity. This represents largely an extension of the work done in 1920, inasmuch as something in all of the above mentioned phases was being done in 1920. The work has not undergone radical changes in the past five years. The appropriations have increased, the staff is larger, there have been new lines of endeavor, notably the promotion of demonstration well child conferences. The nutrition work has been expanded generally, and there has been an increased amount and improved quality in our health education and publicity.

Boston

THE BOSTON FLOATING HOSPITAL

This hospital was organized July, 1894. Service limited only by accessibility. The hospital treats diseases of children; advances scientific study; instructs and trains medical students, nurses and mothers in the care of sick children. The

budget for 1926 is \$110,000.00, which comes from contributions and from a small income from invested funds.

The following work was done in 1925: On-Shore Department: whooping cough was studied—epidemiologically, bacteriologically and therapeutically, including X-ray therapy; well baby clinics, including physiotherapy, were held; studies were made in dried breast milk feeding and production; there was an orthopedic out-patient clinic; there was medical follow-up work of Boat and On-Shore cases. Boat Department: provided general medical and orthopedic infant and children's service (100 beds); day deck or out-patient department for convalescent care and special nutritional and rickets cases; heliotherapy service on hurricane deck. Postgraduate course in pediatric nursing: practically the same type of work was done in 1920 except that the investigative studies were confined to feeding problems; heliotherapy service and physiotherapeutic apparatus had not been installed and orthopedic care and follow-up work of rachitic cases was not being carried out.

BOSTON SCHOOL OF PHYSICAL EDUCATION

The school was organized in 1913. It trains teachers of physical education, health education and physiotherapy. The budget for 1926 is \$53,000.00, which comes from tuition.

COMMUNITY HEALTH ASSOCIATION

The association was organized in October, 1922, and aims to care for the sick of all ages and to promote health and prevent diseases through home visits and group teaching. The budget for 1926 is \$300,000.00, which comes from fees collected from patients, contracts of insurance companies, and agencies, also endowment and contributions. General nursing, communicable disease nursing, prenatal supervision and postnatal care were among the types of work done in 1925; also infantile paralysis after-care, nutrition service, supervision of well babies and posture classes.

FORSYTH DENTAL INFIRMARY FOR CHILDREN

The infirmary was organized in March, 1910, and aims to improve the teeth of children through preventive measures and early treatment. The budget for 1926 is \$94,000.00, provided by an endowment. Dental, surgical and medical work were done in 1925. A comparison of type of work done in 1925 with 1920 shows a decreased initial age of treatment, and an added prenatal clinic.

MASSACHUSETTS PARENT-TEACHER ASSOCIATION

The association, which was organized in 1910, covers the whole state. It aims to promote child welfare; to raise standards of home life; to secure adequate laws for care and protection of women and children; and to bring about a closer relation between home and school. The budget for 1926 is \$5,000.00, which comes from dues from local associations, contributing members, gifts and life memberships. In 1925 special stress was put on preschool study groups and a summer campaign for securing 100 per cent fit children entering school in the fall. A field secretary was appointed to organize new groups and to stimulate work all over the state. Work has broadened and deepened since 1920; many more fathers are becoming

interested, many local associations having men presidents. During the past five years the work has been put on a firmer foundation in every way and now has the hearty support and interest of the State Board of Education. Requests to address student bodies of normal schools have been received.

THE SUNNYSIDE DAY NURSERY

The nursery was organized in 1902, and cares for children during the day while their parents are at work, looking after the children's welfare, helping to educate both parents and children socially. The budget for 1926 is \$7,000.00 which is secured from private contributions, from annual subscribers and from sales and entertainments. In 1925, besides routine care of children, they have had health clinics and classes in dancing, singing, sewing and calisthenics; mothers' parties and girls' club. Since 1920 more attention has been devoted to the education of mothers. A clinic has also been added.

Brockton

BROCKTON VISITING NURSE ASSOCIATION

The association was organized in 1904 and aims to do generalized public health nursing and to carry on health education in the home and clinic. The budget for 1926 is \$29,212.00, which comes from fees collected from patients, from contracts of insurance companies, from the Board of Health of the City of Brockton, donations and about \$13,500.00 from the Community Chest and \$300.00 from the Tuberculosis League. Since 1920 there has been the development of preschool child nursing; development of an intensive infant welfare program, and further development of prenatal and maternity nursing. Since then, 4 staff nurses have been released for a period of 4 months to study public health in Simmons College, and 4 more graduates of the course in public health given by Simmons College have been added to the staff. A full-time assistant has been employed. The association has moved to a more central location.

East Boston

TRINITY NEIGHBORHOOD HOUSE AND DAY NURSERY

The aim is to help disabled families, particularly women, by day nursery care. The budget of \$7,000.00 comes from the Trinity Church of Boston. In 1925, a baby hygiene clinic was conducted in Trinity House by the Health Department of the City of Boston. Mothers' clubs were formed, classes and scout meetings were held. There has been less industrial work done since 1920 and more recreation. There is much less poverty in the district, which has changed from American, Nova Scotian, Irish and Jewish to Italian. The Italians are buying good houses.

Fall River

MATERNAL AND CHILD WELFARE COMMISSION

The commission was organized in February, 1923. The budget for 1926 is \$37,500.00, secured from direct taxation. Prenatal, obstetrical and baby welfare, preschool and child work was done in 1925. The work has gradually developed to include the whole city. This commission has taken over entirely the child welfare work of the District Nursing Association.

Falmouth**FALMOUTH NURSING ASSOCIATION**

The association, formed in 1916, aims to provide skilled nursing care for the sick and the teaching of hygiene and sanitation. The association's funds come from annual memberships, annual fete, donations, fees and appropriation from Town and School Committee. Following are the types of work in 1925: nursing care; prenatal; child welfare; board of health work; school nursing, including dental, throat, eye and mental clinics. The type of work has not varied much in the past five years but the amount of work in each branch has increased. With the exception of the mental clinics started two years ago, the clinic work is the same. For the past two years the nurses have been deputy agents of the Board of Health. There has been a marked increase in the amount of work done by the nurses for the summer population in Falmouth.

Fitchburg**VISITING NURSING ASSOCIATION OF FITCHBURG**

The association, formed in 1913, aims to help the sick in every way. The budget is \$10,925.55, the funds coming from contributions, tag day, Thanksgiving dance and collections. Types of work in 1925 are as follows: bedside nursing, baby hygiene, baby conferences, school nursing in three surrounding towns; a generalized nursing program; industrial nursing in one plant and substituting in another. In 1920 milk stations were opened and in 1925 these were called baby hygiene stations. Generalized nursing in 1925 has taken the place of the specialized nursing of 1920. In the past five years more preventive work has been done. All new babies reported to the city clerk are visited monthly, and assistance has been given the small town in its school nursing.

Great Barrington**THE GREAT BARRINGTON VISITING NURSE ASSOCIATION**

The association, which was organized in 1908, aims to do bedside nursing, public health nursing, to give instruction in hygiene and to undertake other forms of community welfare work. The budget of \$12,000.00, comes from house to house canvass, town appropriations, contributions, legacy, fees and insurance company contracts. Bedside, maternity (prenatal, delivery and postpartum) care was given, also child welfare, school nursing and clinic service. Since 1920, more instructive work has been done and more baby welfare conferences have been developed. More people have paid for services rendered. Appropriation for public health nursing is an established factor in towns. The general equipment is now more modern and complete; standing orders are signed by physicians; nurses' salaries have been increased.

Holyoke**CHILD WELFARE COMMISSION**

The commission was organized in December, 1918, and aims to give prenatal, postnatal and preschool care; to prepare formulae for desirable cases and distribute the same. The budget includes salaries amounting to \$7,556.00, maintenance of \$14,450.00. These amounts are appropriated by the Board of Aldermen. The work done in 1925 as compared with that done in 1920 is about the same except in the growth of prenatal work which has been very marked, with diminu-

tion in stillbirths and deaths in the first week of life. There has been more home modification of milk recently. An appropriation for a full-time preschool nurse has been received.

Lowell

THE LOWELL GUILD

This guild was organized in March, 1911, and aims to assist the sick and relieve the suffering. The budget for 1926 is \$17,000.00, which is received from the income from trust funds, the Lowell Community Chest and from insurance company contracts. In 1925 there were general visiting nurse work, baby hygiene conferences and follow-up work in the homes. Since 1920 the work has changed from specialized to generalized nursing and probably more stress is being laid on educational work.

New Bedford

INSTRUCTIVE NURSING ASSOCIATION

The association, which was formed in 1891, and incorporated in 1900, aims to care for the sick, to prevent disease and to promote health. The budget for 1926 is \$29,999.00, the funds coming from fees from patients, fees from insurance companies for care of their policy holders, income from invested funds and the Community Fund. In 1925 there were the following types of work: bedside care of the sick; preventive work including prenatal nursing; care of patients suffering with minor communicable diseases; and nursing supervision of patients with scarlet fever and diphtheria. During the past five years greater emphasis has been placed on preventive work. There has been an increased demand for nursing care from families who can afford to pay the full fee. More attention has been paid to educational work among the families, both in individual instruction and group teaching.

NEW BEDFORD'S CHILDREN'S AID SOCIETY

The society was incorporated in 1843 and aims to care for destitute, neglected and wayward children of every creed and provides, so far as possible, close supervision in selected family homes. This type of work was done in 1925; also there was supervision of children in their own homes, and care and supervision of unmarried mothers. The work with unmarried mothers has increased since 1920. The age limit of children received has advanced from 18 to 21 years. The budget for 1926 is \$39,876.03 which comes from dividends and interest from beneficiaries, fines, donations and the Welfare Federation.

Newburyport

NEWBURYPORT HEALTH CENTER

This health center was organized in September, 1920, and aims to promote good health among children of preschool age; to check tuberculosis and to give nursing care to the sick. The budget for 1926 is \$6,000.00, secured from the Moseley Foundation, Newburyport Anti-Tuberculosis Association, and the American Red Cross. Child welfare work, antituberculosis, Red Cross work, and district nursing service were carried on in 1925. The staff nurses are also board of health nurses. Children under 6 years attending child welfare conferences have dental attention one afternoon a week. Since 1920 the work has been done on a larger scale and extended to a larger number of people.

Springfield

SPRINGFIELD NURSING AND PUBLIC HEALTH ASSOCIATION

This association was organized in 1924 and aims to promote the health of the people of Springfield and seeks not only to alleviate suffering by skilled bedside nursing but to teach preservation of health by instruction to families in the simple rules of nursing and hygiene. The budget for 1926 is \$38,000.00, the funds coming from the Community Chest, patients' fees, and from insurance company contracts. In 1925 there was a generalized nursing program. The types of work included: acute and chronic bedside nursing; prenatal care; delivery service; postnatal care; child welfare and preschool work. There was industrial work in five local factories. Instruction in nutrition was given among all association families. Eight child health conferences were conducted and one prenatal clinic held. The following is a comparison of work done in 1920 and 1925:

	1920	1925
Number of patients	5,844	10,257
Number of nursing visits.....	13,407	23,562
Number of prenatal visits.....	2,643	4,395
Number of child welfare visits.....	22,318	30,000
Attendance at Child Welfare Clinics.....	5,304	11,786
Deliveries at home	260	254
Hours in factories	240	395

The introduction of a prenatal clinic and the inclusion of the delivery service in the generalized program are two of the significant changes which have taken place in the past five years. Also a nutrition worker was added to the staff.

Worcester

WORCESTER SOCIETY FOR DISTRICT NURSING

This society which was formed in 1892 aims to care for the sick in their homes and to do child welfare, prenatal, preschool work, social service and all kinds of public health work. The budget for 1926 is \$73,241.00, the funds coming from the Community Chest. In 1925 there were 7 welfare stations, 7 preschool clinics with a doctor in attendance; prenatal work in connection with hospitals; corrective work for boys' clubs; bedside nursing; and social visiting. In the past five years 8 nurses, 2 supervisors and an assistant superintendent have been added to the staff. Statistics are kept for the police, for the Chamber of Commerce, for the American Naturalization Board and for the State Board of Health.

MICHIGAN

MICHIGAN DEPARTMENT OF HEALTH, BUREAU OF CHILD HYGIENE AND
PUBLIC HEALTH NURSING, LANSING

The bureau was organized in September, 1920. The budget for 1925 is \$64,482.00, of which \$34,741.00 comes from the state and \$29,741.00 from the Sheppard-Towner funds.

Types of work in 1925 include infant, preschool and prenatal clinics; mother and baby health centers; mothers' classes; maternal and infant welfare classes;

Little Mothers' Leagues; prenatal conferences; breast feeding surveys; immunization campaigns; distribution of literature on prenatal, infant and child care.

The work done in 1925 as compared with that done in 1920 differs in that the work then was principally educational and getting the aims of the bureau before the physicians of the staff and the public.

Since 1920, the organization of the state in county health coöperating committees has been practically completed. Permanent health centers have been established. Much has been done among infants and preschool children and while this will be continued, intensive prenatal work is planned for the coming year. More and more of the work is being taken up by local groups so that there may be a continuation of the important phases of the work through local groups, when Shepard-Towner funds are no longer available.

Flint

BOARD OF HEALTH, NURSING DIVISION

The types of work done in 1925 include prenatal work, well baby clinics and nurses' visits to the homes. In 1920, only the baby clinic work was done, whereas now well baby clinics are being held. Each nurse does prenatal and baby welfare work. A prenatal clinic is conducted in the health department.

Detroit

MERRILL-PALMER SCHOOL

This school was organized in October, 1918, but the active work began in January, 1922. The budget for 1926 is \$200,000.00, which comes from the endowment. The will of Mrs. Lizzie Merrill Palmer states that the money left is "for the founding, endowment and maintenance of a school to be known as the Merrill-Palmer Motherhood and Home Training School, in which . . . girls and young women shall be educated, trained, and developed with special reference to fitting them mentally, morally, physically and religiously for wifehood and motherhood, and the management, supervision, direction and inspiration of homes." The school is developing programs of preparental and parental education and conducting two nursery schools in Detroit, having an enrollment of 64 children, which afford an opportunity for the university students coming for special training in child care to study mental and physical growth and social factors influencing child life. Undergraduate students, selected by the university faculties, generally from among honor students of senior or graduate rank, remain in residence a quarter or a semester. A limited number of graduate students, not connected with universities, enter for training as nursery school teachers or specialized study in some one of the fields represented in child training and care. Courses are given in: the mental growth and character development; physical growth and development; social aspects on child life; educational methods for young children. These courses are acceptable to the universities detailing students toward degree requirement and the equivalent of a major course. The new projects include: branch nursery schools conducted in coöperation with University of Michigan, in Ann Arbor; and in connection with the Highland Park High School. In the Highland Park Nursery School, the high school girls taking certain home economics courses are assigned for observation of the children and participation in the daily régime of training them. Demonstration of a community educational program in nutrition on Grosse Isle, an island forty miles from Detroit, of typical American population

and somewhat above average economic status, is in progress. The purpose of the demonstration was to obtain the nutritional histories and practices of average American families and types of children developed under such home régimes. A special study was made of the quantity and quality of milk desirable for the promotion of maximum growth and development of preschool and school children.

VISITING NURSE ASSOCIATION OF DETROIT

This association was formed in 1898. In 1920 it amalgamated with the Babies' Milk Fund which was founded in 1906. The association aims to give nursing care to the sick in their home, teaching the patient and his family preventive health measures as well as curative. The budget is \$152,157.00, \$20,000.00 of which is used for child welfare clinics and follow-up work. Funds come from service fees, income from endowment fund, and the operating deficit supplied by the Detroit Community Fund. In 1925 the following types of work have been included: care of the acute and chronically ill, of the prenatal and maternity patient, including a 24-hour delivery service; a limited child and adult welfare service supplied where the public agencies did not function; child welfare and prenatal clinics maintained in the adjacent towns of Hamtramck and River Rouge; and an affiliation with the Children's Hospital of Michigan in May, 1925, to give the home care to their orthopedic clinic patients.

In the past five years the same type of work has been carried on, though a more generalized program has been followed. The care of communicable disease was added in 1924. The growth and the staff since 1920 has been 33 $\frac{1}{3}$ per cent. The following further changes have been made since then: the development of an organized teaching center with a routine plan of instruction for new staff members and students; the transfer of the care of prenatal patients from a special staff to the general; the initiation of a nursing service for communicable disease; the establishment of a prenatal clinic in Hamtramck.

Grand Rapids

CLINIC FOR INFANT FEEDING

The clinic was organized in 1911 and incorporated in 1914 and aims to keep well the babies and children under school age. Sick babies, except in the case of the very poor, are referred to their family doctor. A feeding clinic is maintained. The budget for 1925 is \$33,508.91 from the Welfare Union and \$10,971.00 from the city budget. Prenatal work was done during 1925 and a fourth nurse was added for 1926 infant welfare work. This includes giving formulae to well babies at the stations, instruction in preparation of the same in homes; demonstration of manual expression of breast milk and routine care of baby, nursing of sick ones; preschool and nutrition work, collection and distribution of mothers' milk. At the request of the Health Department in 1921 monthly visits were begun to every baby born in Grand Rapids, continuing for 6 months; since 1921 the calls have been continued for one year. This resulted in a lower infant mortality rate; increased maternal nursing; and more expression of breast milk. Monthly visiting in the homes is the greatest change made in recent years in our work, as the mothers formerly came to the clinic. There have been fewer sick babies and over 50 per cent of the deaths in the first year have been in the first few days of life. Children are now more nearly up to normal weight upon entering school.

MINNESOTA

STATE DEPARTMENT OF HEALTH, DIVISION OF CHILD HEALTH,
MINNEAPOLIS

The Division of Child Health was organized in July, 1922. The budget for the current year is \$53,000.00. The state appropriated \$21,000.00; the federal government matched this sum; and there was a federal gift of \$5,000.00; the remaining \$6,000.00 is a balance from 1925. The types of work in 1925 included prenatal educational work carried on in clinics; mothers' classes; and by the distribution of literature. Infant and preschool educational work was demonstrated in county fairs and in mothers' meetings and by clinics. Nursing service was given to the Chippewa Indians. Mothercraft classes and a correspondence course in maternal and infant hygiene were also provided.

Duluth

SCOTTISH RITE INFANT WELFARE DEPARTMENT

This department was organized in 1910. This organization aims to keep babies well; to teach mothers the wisdom of preventive measures; to assist in reducing infant mortality by encouraging mothers to nurse their babies and by supplying breast milk to weak and premature babies. The budget for 1926 is \$5,500.00 which is provided by Scottish Rite Masons. In 1925 there were 5 free feeding clinics maintained weekly, with a pediatricist in charge of each clinic; mothers were taught milk expression; layettes were supplied for needy families; literature was distributed on care and feeding of children and there was follow-up work in homes by visiting nurses. The following is a comparison of the types of work in 1925 and 1920: In 1920 clinics were held for both sick and well babies. In 1925, however, there are clinics for well babies only. During the past five years the breast milk dairy was organized, and one additional feeding clinic organized. There has been an increase in the staff, clinic attendance, and in efficiency in clinic and follow-up work. The general health of mothers and children appears to have been benefited by this work.

Minneapolis

INFANT WELFARE SOCIETY OF MINNEAPOLIS

This society was organized in 1910 and incorporated in 1923. The organization aims to provide medical supervision and nursing care for expectant mothers who cannot afford to pay for such service, to teach mothers the importance of breast feeding; to teach mothers to keep their well babies under the supervision of a doctor; to provide this supervision for mothers who cannot afford to pay for it, and to teach mothers of children of preschool age the proper feeding, environment and control of their children. The budget for 1926 was \$40,640.00, supplied by the Community Fund. Clinics have been held and home follow-up work for families has been provided in 1925 for: expectant mothers; the well baby under 3 years of age; for children of preschool age who show definite behavior problems. Classes in infant hygiene for kindergarten students and young girls have been conducted. In comparing the work in 1925 with that done in 1920, the following changes are of note: There has been more intensive work with a smaller number of cases in 1925 than in 1920. A prenatal program has been developed since then so that now most home visiting for prenatal clinics is done by the Visiting

Nurse Association staff. Since September, 1925, routine visits have been discontinued to the homes of new-born babies, except to those born in public hospitals. The length of time of supervision of infants has been increased from birth to 2 years of age, to birth to 4 years. The scope of infant clinics has been enlarged so as to include, not only supervision of the health of the well baby, but to teach the mother the proper training of children so as to avoid later behavior problems. Clinics have been organized for children of preschool age whose behavior showed definite problems in training.

MINNEAPOLIS COUNCIL OF SOCIAL AGENCIES

This council was organized in 1919 for administrative purposes, rather than for carrying on the detailed social work undertaken by its constituent members.

VISITING NURSE ASSOCIATION

The association was organized in 1917 and aims to give bedside care to the sick in their homes and to teach hygiene and health. The budget for 1926 is \$55,742.00 and comes from the Community Chest, insurance company contracts and a small percentage from patients' fees. The following are types of work in 1925: general nursing care, prenatal and delivery service, contagious disease, orthopedic and occupational therapy work. Since 1920 a full maternity program with prenatal and delivery service has been established. The communicable disease program has been increased to include all types of disease. Also a physiotherapy department has been established and has carried on occupational therapy work.

St. Paul

DEPARTMENT OF EDUCATION, BUREAU OF SCHOOLS, DIVISION OF HYGIENE (SCHOOL HEALTH WORK ONLY)

The types of work done in 1925 included a physical examination of special cases by the school physician; physical inspection by the nurse; home visits for absence and correction of physical defects; inspection for communicable diseases; systematic weighing and measuring twice a year, and every month for children 7 per cent or more underweight; nutrition clinics and fresh air rooms; milk stations in schools; school dental clinics and oral hygienists; and school health work in high schools. The work done in 1925 is much more intensive than that in 1920. There is a larger corps of workers now, and a nutrition section has been established.

ST. PAUL BABY WELFARE ASSOCIATION

This association, organized August, 1919, aims to lower the infant mortality rate and to improve the health and well-being of the children of St. Paul. The budget for 1926 is \$22,530.00, which is secured from the Community Chest and the Scottish Rite Masons.

In 1925 there were 5 clinics conducted for preschool children; prenatal and infant care, both clinic and home work were also carried on. In 1920 very little work was done with children over 2 years of age, but since then 3 new stations have been established in remote parts of the city.

MISSISSIPPI

STATE BOARD OF HEALTH, MATERNAL AND INFANT HYGIENE DIVISION,
BUREAU OF PUBLIC HEALTH NURSING AND CHILD HYGIENE,
JACKSON

The division was organized in March, 1922. The budget for the fiscal year is \$39,153.16 and comes from state appropriations and Sheppard-Towner funds. In addition to the nursing program there are the services of one itinerant physician, one field lecturer, one vital statistics clerk and one laboratory technician. In the last five years there has been an improvement in midwifery.

MISSOURI

Kansas City

CHILDREN'S BUREAU

The bureau was organized in 1919 and has taken as its special purpose the education of parents in the means of prevention of the ills of childhood. The bureau strives to make the members realize that they cannot safeguard their own children unless they safeguard all, and to rouse the civic and parental interest which will demand adequate information. The budget for 1926 is \$12,500.00 and comes from the Charity Chest—Chamber of Commerce. Since 1920 examination centers have been held; care has been given to expectant mothers and new-born babies; preschool circle work has been undertaken; and birth registration has increased. The work has grown from general health education to specific, and has become much more thorough as the community's understanding has grown. Habit talks have been added to the health talks given by the physicians to the mothers.

KANSAS CITY VISITING NURSE ASSOCIATION

This association was organized in 1892 and aims to care for the sick in their own homes; to teach health and sanitation and the prevention of disease. The budget for 1926 is \$81,000.00, which is received from the Charity Chest, insurance company contracts, association dues and patients' fees. In 1925 the types of work included bedside nursing; child welfare for the Visiting Nurse Association and for affiliated organizations; tuberculosis work and clinics held with affiliated organizations. Since 1920 the service in all branches has increased; now 15 affiliated organizations are being supplied with nurses, as against 9 in 1920. In the past five years the staff has been increased from 30 to 48 nurses; colored child welfare work has been undertaken; the tuberculosis staff has been increased from 1 to 5; a regular 3-months' course of instruction has been given to new nurses.

THOMAS H. SWOPE SETTLEMENT

This settlement was founded in 1902, but was organized and incorporated in 1910. Its aims are to help the home atmosphere; to develop individuals; to promote social instinct and to teach good citizenship. The budget for 1926 is \$18,500.00 and is received from the Charity Drive. There is a dispensary in constant use. In the day nursery the Montessori educational methods are used. There is an art school and a music school. The work that is done at the present time is of a much better type than ever before.

St. Louis

MISSOURI STATE NURSES ASSOCIATION

This association was established in 1906, its aims being to elevate standards of nursing and to procure good nursing laws. It has established a Central Registry for Nurses. The funds are secured through membership dues. In 1925 the association furnished 2 scholarship funds to loan to worthy students. In 1925 a "History of Nursing in Missouri" was compiled, the expense of which has been paid by the nurses. The work since 1920 has increased fivefold.

MISSOURI TUBERCULOSIS ASSOCIATION

The association, which was organized in May, 1907, aims to prevent and relieve tuberculosis. The funds are secured from the Christmas Seal sale.

ST. LOUIS CHILDREN'S AID SOCIETY

The society was organized in 1909 and incorporated in 1911. The budget is \$61,670.00 and comes from the St. Louis Community Fund, refunds on board and expense from parents and guardians. The organization aims to provide private family care for children who are convalescent, delicate, or otherwise handicapped, and for other children who present behavior problems; to assist the unmarried mother to keep her baby and to make adjustments and plans that seem best for the mother, her child, and the community. The types of work in 1925 included: child placement; provision of medical examination and care; dental care; supervision of some children in their own homes. The amount done in 1925 is almost double that done in 1920; the work with mothers and babies has become a special department with a director in charge; a regular physician is now employed to examine all children accepted for care, and to do all medical work, except for those needing care of a specialist.

VISITING NURSE ASSOCIATION

This association was organized in January, 1911, and incorporated in June of that same year. The association aims to give bedside care; to coöperate with other health and social agencies in the education of the community in preventive health measures; and to promote nursing education by giving student nurses an introduction to public health nursing. The budget for 1926 is \$90,500.00 which is secured from the Community Fund and self-support. County service and student nurse affiliations were both undertaken in 1925. In the past five years improved and more uniform methods have been inaugurated.

NEBRASKA

Omaha

THE VISITING NURSE ASSOCIATION OF OMAHA

The association was organized in 1896 and aims to give skilled nursing care to the sick in their homes; to teach the simple rules of hygiene, to reduce maternal and infant mortality, and how to avoid sickness. The budget for the current fiscal year is \$53,127.00, the funds coming from the Community Chest, membership dues, receipts from patients, insurance companies' contracts, and the Women's

Benefit Association. The salary of two nurses is paid, one by the city and one by the Nebraska Tuberculosis Association. In 1925 the work included bedside nursing; prenatal and delivery service; hourly nursing; infant welfare conferences; preschool age clinic and classes; tuberculosis and orthopedic nursing; family health and case work. The statistics of the association show an increase of 39 per cent of patients in 1925 over those in 1920; an increase of 36 per cent in visits. There were 2,783 babies registered in infant welfare conference in 1925. The conference attendance in 1925 was 9,133, a 69 per cent increase over 1920. The number of conferences has increased 56 per cent. In 1925 there were 4,944 tuberculosis visits made, an increase of 18 per cent over 1920.

In these past five years the following services have been added: orthopedic, delivery, hourly, and nutrition service. The work has been changed from a specialized to a generalized service. Home visits have been paid to patients attending the prenatal, orthopedic, and tuberculosis clinics in the University and Creighton Medical Schools. Among other changes since 1920 the following are noted: an educational program within the organization has been arranged for student and staff nurses; there is an understanding between the school nurses and visiting nurses (the only two organizations doing public health work); a pay service has been developed; a member of the staff is a family case worker insuring sounder case work methods. Also, a community service has been secured for all by coöperation with health and social agencies, doctors and laymen so that community health may represent a common good.

NEVADA

STATE BOARD OF HEALTH, CHILD WELFARE DIVISION, RENO

The Child Welfare Division was organized in July, 1922. Educational demonstrations were held to show the communities the value and necessity of having a public health nurse in each county. The budget for the fiscal year is \$16,044.00, the funds coming from federal and state sources. Pioneer work in maternity and infancy was carried on in 1925. There has been progress in all lines of work, especially in birth registration, and increased interest shown in the attitude of the medical men.

NEW HAMPSHIRE

Manchester

CITY HEALTH DEPARTMENT. INFANT WELFARE SERVICE

This service was organized in 1915. It was anticipated that the expenditure for the current fiscal year would be \$9,270.00. Appropriation of funds is made by the city. In 1925 the work included prenatal care, checking births, stillbirth investigations, the supervision of babies, home visits, clinics, and social service. Since 1920 there have been 3 infant welfare stations conducted in different sections of the city and 5 nurses employed; the general character of the work is the same; it has been improved and changes have been made to meet changing conditions. A general out-patient service conducted at the West Side Infant Welfare Station was transferred in February, 1922, to a hospital. There has been more intensive instruction in prenatal care.

NEW JERSEY

Atlantic City

ATLANTIC CITY DAY NURSERY

This nursery was organized in March, 1907. The nursery accommodates 24 children a day, these being children of working mothers. In this nursery, the children are taught and trained and given regular day nursery care, including supervision of their health. Three nourishing meals are served every day. A community center is being planned for the new building. Several children attend the nearby school. A new building is being sought with larger equipment, but the present quarters are entirely free from debt. Mothers' meetings have been held on high days and holidays, the mothers coming in for dessert with the children at the regular meals. The city appropriates \$1,000.00, and the remainder, not stated, is received through voluntary contributions.

CHILD FEDERATION OF ATLANTIC CITY

The Child Federation was organized in 1916 and aims to actively advance the best interests of the babies and children of Atlantic City; to favor and assist agencies helping them to develop into men and women, sound in body and mind; in a word, to secure for babies and children the best chance to live and make the most of their lives. The budget for 1926 is about \$4,000.00, the funds coming from city appropriations, yearly dollar memberships, sustaining and subscribing memberships, contributions from card parties, and charitable funds of private organizations of various types. The following types of work have been carried on in 1925: prenatal, infant and preschool work in the homes; a baby-keep-well station twice a week (a physician in general practice has one of the clinics each week, and a pediatricist holds the other); prenatal clinic once a week; general welfare; bedside sick nursing; coöperation with agencies caring for unmarried mothers. The Federation has worked with the State Department of Health in its child hygiene program, using the clinic equipment and printed forms furnished by the department. The employment of an additional nurse has made it possible to open new territory.

Newark

THE SOCIETY OF THE BABIES' HOSPITAL

This society was organized in May, 1896, and aims to provide hospital care for sick infants; a training school for infants' nurses; a free clinic for sick infants, and to instruct mothers and provide proper food for infants at a nominal cost. The funds are obtained from the Newark Community Chest. In 1925 in addition to the sources named there was a dispensary for distribution of milk to the poor, and for follow-up work in the homes by visiting nurses. Since 1920 there has been an increased number cared for in every department, for example: 1,035 cases cared for in clinics in 1920, 2,044 in 1925; 1,740 attended consultation stations in 1920, 3,011 in 1925; 1,560 home visits by visiting nurses in 1920, 5,699 in 1925.

Orange

DIET KITCHEN OF THE ORANGES

The Diet Kitchen was opened in October, 1895. This organization aims to assist in the reduction of infant mortality by teaching mothers in their homes

the proper care and feeding of children; by holding health conferences for educational and preventive work among babies and children of preschool age. The budget for 1926 is \$35,027.00, which comes from the Welfare Federation of The Oranges and from receipts from the sale of milk. In 1925 there were 4 weighing stations for babies and preschool children; a nutrition class for preschool children and their mothers; little mothers' classes; milk distributed to babies, undernourished children and adults. There were 1,312 babies under supervision to whom 115,326 quarts of milk were distributed; 78,614 quarts were supplied to children and adults. The majority of cases pay cost.

The nutrition class has adopted the Dunfermline Scale as having been worked out in a study of nutrition by the Child Hygiene Division of the New York City Department of Health and the Association for Improving the Condition of the Poor. The children (2-5 years) are graded into classes I, II, III, IV, and a complete examination made by the doctor. Records are kept. The first part of the session is given over to a demonstration by the nurse in the presence of the mothers, of a simple well-balanced meal for an undernourished child and actual preparation of it. The nurse also lays stress on the value of foods, on child hygiene, and on the discipline of the child. Sixty-nine per cent of the children referred to the class were present.

The Diet Kitchen is the only health organization of The Oranges doing intensive work with preschool children. It is slow, difficult work but is reaping results, with 633 enrolled. The public schools now realize that the Diet Kitchen's history and health examination record of children are of great value to them, and are requesting complete records upon termination of the case at 5 years of age. The Diet Kitchen was the only health organization in Orange that observed the Hon. Herbert Hoover's request in regard to May Day, conducting a complete survey in all districts of little children who had never been to a weighing station, requesting them to come on that day. In 1920 the work included only little mothers' classes, prenatal work (now taken over by Maternity Center), and milk distribution. Since then all of the child welfare work of Orange, with the exception of a district controlled by the Board of Health, has been placed under the supervision of the Diet Kitchen. Two additional weighing stations have been opened, one additional nurse added to the staff and an assistant in office. There has been a very rapid though healthy growth in the past five years in all departments, especially in the child welfare department. This has been made possible by the Welfare Federation of The Oranges, one of the most successful of its kind in the country, which has assured financial support, thus releasing energies formerly expended in raising of funds, to be devoted to constructive work.

Passaic

CITY DEPARTMENT OF HEALTH, DIVISION OF CHILD HYGIENE

This division was organized in 1915. The division has no separate budget, provision being made for it in the general city budget. In 1925 the work included prenatal and infant welfare, preschool and school hygiene work.

Plainfield

VISITING NURSE ASSOCIATION

This association was organized in July, 1911, and provides skilled trained nurses to care for the sick in their homes; teaches the rules of health in schools, pre-

school groups and baby stations. The budget for 1926 is \$21,000.00. The funds were secured from contributions, the Community Chest, boards of education, poor funds, township funds and fees from patients and insurance company contracts, and the factory. In 1925 the association carried on preschool examinations; home care of medical and surgical cases; maternity welfare; health work in factories and homes, schools and baby stations. Since 1920 the number of patients who are willing to pay has increased. There has been a marked improvement in the keeping and the use of records. Greater interest in matters pertaining to the whole question of health abroad and at home has been displayed by the board of trustees and by the staff. Greater interest has been shown in finding the causes of ill-health and their prevention; in mental health and in the whole question of community health and community welfare.

NEW YORK

STATE DEPARTMENT OF HEALTH, DIVISION OF MATERNITY, INFANCY AND CHILD HYGIENE, ALBANY

The division was organized in 1922. Funds come from the federal government under the Sheppard-Towner Act and from the state. The types of work in 1925 include midwife regulation; orthopedic clinics; child health consultations; prenatal consultations; local demonstrations in maternity, infancy, preschool and child health work; breast feeding campaigns; educational activities including maternal hygiene courses for nurses; mothers' health clubs; Little Mothers' Leagues; nutrition courses; post graduate medical education in coöperation with the State Medical Society; exhibits; consultation service for needy cases through services regional consultants; consultant nursing service for local child hygiene stations; and studies and surveys.

In looking for the changes made since 1920, the following are noted: There is certainly a much more acute and more universally expressed consciousness on the part of the general public of the need for mother and child protection. Rural health departments and volunteer groups are translating this consciousness into action by attempting to organize maternity and infancy work locally, to be supported out of local funds. They are looking to this Department for assistance in carrying out these projects and are, in general, accepting supervision and guidance both as to the character of the work to be done and the standard of it.

In the last year or two there has been shown a distinct tendency to undertake projects on a county-wide basis. This has not developed from intentional stimulation on our part, but rather as the outgrowth of other activities. For instance, the child health consultations have covered the rural portions of the state for several years, and now county medical societies are undertaking these consultations on their own, accepting a negligible amount of financial assistance from this division.

General public health nursing has increased all over the state and the quality and effectiveness of the work as regards maternity and infancy has been vastly improved. A maternity and infancy program suitable for educational and life saving purposes has really been crystalized and is in actual operation in many parts of the state where no child health work of any character whatever was done before. The work is being properly recorded and reported to the State Department of Health, not only by those nurses that have been placed in com-

munities with the assistance of Sheppard-Towner funds but also by nurses working independently under local health or lay organizations. Health accounting is really on the way and the number and variety of educational channels are constantly on the increase.

Batavia

INFANT WELFARE ASSOCIATION

This association, organized in 1910, aims to reduce infant and maternal mortality; to promote the welfare and hygiene of maternity and infancy; and to look after children of preschool age. The budget for 1926 is \$516.00, which comes from All-Batavia Fund and membership funds. The nurse is paid by Sheppard-Towner funds and by the city. In 1925 clinics were held bi-monthly under the supervision of the city physicians; prenatal cases were treated; and home group conferences and a mothers' health club were held weekly. Babies were weighed and measured weekly and home visits were paid to them. In the past five years the Sheppard-Towner funds have been accepted, a physician has been in attendance at clinics, a club for mothers' health has been organized, and there have been more group conferences in the stations.

Brooklyn

MATERNITY CENTER ASSOCIATION OF THE BOROUGH OF BROOKLYN

This association aims to teach the value and need of prenatal care, and the need of medical and nursing supervision throughout pregnancy and to instruct mothers as to the proper methods of caring for their babies, for which a center and doctor's clinic is maintained. The budget for 1926 is \$10,000.00 and comes from memberships, voluntary contributions, profits from The Center Shop, benefits and rummage sales.

In 1925 the doctor's clinic was held twice a week and demonstrations once a week. Home visits were made by nurses, and postnatal care given to patients who were carried during their pregnancy in the clinic. Model clothes were shown, and a demonstration given as to proper care of the baby. In the past five years a Mothercraft Club has been organized in response to the demand for prenatal care which was such as to warrant the opening of the club where mothers could come for private or group instruction at a nominal fee. This club has been functioning since October, 1924. There is instruction as to the proper food, clothes, exercise, and so forth, for the mother before the baby is born, and there are lessons given on the care of the baby after birth. As this is a strictly non-medical organization, no patient is carried who is not already under the care of her physician; however, all the teaching is carried on by a registered nurse and a medical advisory board governs the work.

VISITING NURSE ASSOCIATION OF BROOKLYN

The association, formed in 1888, aims to provide general nursing care in the homes on a visit basis, to teach personal hygiene, the hygiene of pregnancy and the prevention of disease. As far as possible the nurses assist in solving social and economic problems arising in the homes. Prenatal, postnatal, general visiting nursing and orthopedic work by a special staff have been carried on in 1925. Special emphasis has been placed upon the subject of infant and maternal mortality and the visiting nurses' responsibility in recognizing the causes and pre-

vention of accidents of pregnancy. The nurses have also conducted group conferences and demonstrations which have received a unanimous response from patients. In the past five years standing orders for the Visiting Nurse Association have been approved by the Medical Society of the County of Kings; prenatal conferences have been developed; after-care of infantile paralysis cases has been given in the homes. The comparative study of 2,000 maternity cases under the care of the nurses has been of great value to us in estimating the results of our work and in anticipating our future needs. Care of preschool age children in their homes has been undertaken with follow-up work to clear up physical defects. Scholarships have been awarded to staff members for courses in public health nursing at Teachers College, Columbia University. This year 6 scholarships have been given to staff members for courses in orthopedics at Long Island Medical College, Brooklyn.

Buffalo

DISTRICT NURSING ASSOCIATION

This association was organized in 1887 and aims to teach health and to give bedside care and also to train student nurses. The budget for 1926 is \$113,000.00, which comes from fees from patients, and from insurance company contracts; also from the Joint Charities and Community Fund. In 1925 all types of bedside work were done; there was health teaching and demonstration; and there was clinic and field work in child health, prenatal care, and care of sick babies. Hospital social service field work was carried on. Students from registered hospitals were trained. More health teaching is done to-day than in 1920. During the past five years a six weeks' course in pediatrics and in obstetrics has been given for hospital students; and service for patients during period of labor has been instituted.

Ithaca

DEPARTMENT OF HYGIENE AND PREVENTIVE MEDICINE, CORNELL UNIVERSITY

This department was organized in 1919 and aims to provide efficient health service and health education for Cornell University students. The budget for 1926 is \$33,350.00, which comes from Cornell University and student fees. In 1925 the types of service included health service to Cornell students; health education, control of contagious diseases among these students; and sanitary control of the campus. A comparison of the work done in 1925 with that done in 1920 shows:

	1924-25	1919-20
Physical examinations	4,879	4,051
Consultation	26,072	16,281
Laboratory tests	6,522	14

The only changes within the past five years have been consolidation on the lines established in 1920.

Jamaica, L. I.

QUEENSBORO TUBERCULOSIS ASSOCIATION

This association, organized in October, 1920, aims to control and prevent tuberculosis and raise the standard of the general health of the community, with particular emphasis upon the child. The budget for 1926 is approximately \$50,000.00, which is obtained by the sale of Christmas Seals. The association

furnished milk and conducted nutrition classes in open air classes in 1925; sent 60 undernourished children to summer camps; conducted an expensive nutrition demonstration in a public school; maintained nursing service with full-time public health nurse; gave talks on health, sanatoria information, advocated early health examinations, and so forth. Each successive year a larger and more extensive program has been adopted, the outstanding feature of the work being in latter years, extensive devotion to work with children, notably nutrition demonstrations in public schools, summer camp for undernourished children and nursing service in following malnourished children.

Jamestown

JAMESTOWN VISITING NURSE ASSOCIATION

This association was organized in 1909. The aims are conservation, preservation and promotion of health. The budget for 1926 is \$10,300.00, which comes from contract nursing, Community Chest, fees, and \$1,000.00 from the city. In 1925 the service included general visiting nursing; infant welfare; prenatal welfare; bedside care to tuberculosis patients in the field; infant, preschool, and eye, ear, nose and throat clinics; orthopedic clinic, giving periodically exercises and muscle training to these patients; and mental clinics. Both the infant welfare station and the preschool clinic have been established since 1920. The field work has grown and developed faster than the welfare work. The infant welfare station is well patronized and growing. The prenatal clinic is developing very slowly because it is difficult to reach patients and interest them in the clinic, especially those most in need of service.

New York City

ALICE CHAPIN ADOPTION NURSERY

This nursery was organized in 1920 and aims to find homes for abandoned children. The expenses from January to December, 1924, were \$17,219.00, raised through private subscriptions. During 1924, 193 children were adopted in good homes. The number of adoptions is steadily increasing. In 1920 the nursery was given an apartment in the Children's Aid Building. The work has increased so that a house has been bought where the nursery will soon be located. A field worker was added in 1923. There is now a staff of six.

AMERICAN NURSES' ASSOCIATION

This association, organized in 1897, covers 48 states, one district and two territorial associations. It aims to promote the professional and educational advancement of nurses in every proper way; to establish and maintain a code of ethics among nurses; to elevate the standard of nursing education; to distribute relief to such nurses as may become ill, disabled, or destitute. The budget for 1926 is \$52,781.00, which comes from membership.

In 1925 two field secretaries and a publicity secretary were added to the staff; work was much more centralized and considerable custodial care turned over to headquarters office; the educational work was increased; the association contributed financially to the plan of grading of schools of nursing and also prepared a program to build up the membership.

THE BABIES HOSPITAL OF THE CITY OF NEW YORK

This hospital, organized in 1887, aims to give medical and surgical care to sick children of the City of New York, and to promote scientific study and research. The budget for 1926 is \$96,036.00, which comes from City of New York, voluntary contributions, investments, entertainments, board of patients, income from dispensary. Patients come from all over the city.

CHILD STUDY ASSOCIATION OF AMERICA

This association, organized in 1888, aims to educate parents and others who come into direct contact with children so that they may make practical use of present-day knowledge concerning education, psychology, and related subjects. The budget for 1926 is \$75,000.00, and comes from the Laura Spelman Rockefeller Memorial, other contributions, memberships, pledges, subscriptions, and so forth. The work done in 1925 included study groups of parents, teachers and social workers; a three-day public conference on parenthood; training in technic of study-group work; conducting season lectures and conferences; sending speakers to clubs and other organizations; publications; summer play schools; special committee work; correspondence and consultation; training for leadership in education of parents; field work furnished for a class in Teachers College. In 1920, as last year, the most important feature was study group work. Some of the extension work had not then been undertaken. An extension office has been established, from which publications are sent out; this forms the center of field work for Teachers College students, and undertakes in various ways the extension of the principles of the work in the Child Study Association.

CHILDREN'S WELFARE FEDERATION

This Federation, formed in 1912, aims to promote the welfare of infants and children, and to foster coöperation and efficiency among all agencies dealing with children. The budget for 1926 is \$41,626.00, which comes from contributions from individuals and grants from Foundations. In 1925 the work comprised committee work for bringing organizations together in functional or district groups to talk over common problems and chart out policies to prevent duplication and to insure coöperation; a clearing house service for maternity cases; a bureau for collection and sale of mothers' milk; an information bureau; a clearing house for children's cases; record cards were published and sold; and a survey of fresh air homes and camps was made. The type of work has not changed since 1920, but has increased in volume. The services organized since 1920 are: the bureau for the collection and sale of mothers' milk, and the clearing house for maternity cases. The Federation has developed from one interested primarily in saving babies, to a federation of organizations interested in children of all ages and all phases of child welfare work.

EAST HARLEM NURSING AND HEALTH DEMONSTRATION

The organization, formed in 1922, aims at a unification of effort, support and administration for a complete nursing and nutrition program in a limited area. The budget for 1926 is \$65,000.00, the funds coming from the Laura Spelman Rockefeller Memorial, and the New York Association for Improving the Conditions of the Poor, the Henry Street Settlement, American Red Cross and the Maternity Center Association. In 1925 the generalized public health program

included bedside care, maternity (prenatal and postnatal, but not delivery), infant welfare, preschool, nutrition, tuberculosis, dental hygiene and mental hygiene services.

GREENWICH SETTLEMENT HOUSE

This settlement house was organized in 1901 and became a health center in 1919. The work is educational, with a community house as a center. The budget for the current year for the entire house activities, which includes many other activities besides health, is \$79,336.00, coming from contributions. The salaries and so forth, for the health department amount to \$7,339.00. In 1925 there were baby feeding classes; prenatal, preschool, posture, nutrition, children's canteen, cardiac, speech classes; and general health clinic with social service, also a guidance clinic; and the Henry Street Visiting Nursing Service, all coöperating in many activities. Health examinations were held for country care and gymnasium activities. The neighborhood has become more awake to the need for health examinations, hence there has been a greater attendance at clinics. More needed activities are added as money is available.

HENRY STREET VISITING NURSE SERVICE

The service aims to give skilled nursing care in the homes; to give instruction in personal hygiene, sanitation and the prevention of disease; to solve related social problems by referring to proper agencies. The budget is \$478,000.00, which comes from fees from patients for cost of service; fees from insurance and industrial organizations and contributions from committees interested in local centers and contributions from the public. The following types of work have been carried on in 1925: acute nursing work; health classes; maternity work, including prenatal and postpartum care, and delivery attendance in certain limited areas. There has been increase in maternity services offered; mothers' clubs (prenatal) have been held extensively over the city, whereas in 1920 they were limited to very few. In the past five years there has been a development of a health education program in the homes; mothers' clubs have been held in centers of the service; baby health conferences have been held in centers where not provided by other agencies; work has been carried on through 16 offices throughout the area.

JEWISH BOARD OF GUARDIANS

The board, organized in April, 1921, aims to prevent and care for delinquents. The funds come from the Federation for the Support of Jewish Philanthropic Societies. The following types of work were done in 1925: Big Brother and Big Sister work; probation parole and after-care of men and of women; unmarried mother work; chaplaincy in penal institutions. The same work has been done in 1925 as in 1920. The case load of each worker has been considerably reduced; recreational and educational services have improved; higher standards in volunteer work have been developed. The most important change, however, has been the embarking on a definitely psychiatric social service program. Medical, psychiatric, and psychological clinics have been established from which the case work radiates.

JOHN E. BERWIND FREE MATERNITY CLINIC

This clinic was organized in 1910 and incorporated in 1917. The purpose of the clinic is to take care of poor women in their homes during confinement and

to care for their babies for one year. The funds are secured from private charity. Since 1920 the work has increased slightly from year to year.

JUDSON HEALTH CENTER

This center was organized in 1921. It aims to do health work, both preventive and curative. The budget for 1926 is \$98,780.00, the funds coming from the Milbank Memorial Fund, the Laura Spelman Rockefeller Memorial, The American Baptist Home Mission Society, fees, sale of medicine, benefit performances and from miscellaneous contributions. In 1925 the work included: children's health clinics; general medical clinics; ear, nose, throat, eye and dental clinics; educational work through field nurses who visit the home; and nutrition workers who act as consultants, conduct classes and do home visiting; also educational work through clubs and classes and through two demonstration health problem nurseries. Since 1921, the opening year of the center, there has been large growth in the development of the educational home visits and clubs and classes. Emphasis has grown more and more strongly toward the preventive work, that is, 9 health clinics are held weekly in 1925 as against 3 in 1921. Our dental department is giving systematic treatment to the youngest of the school age children as against a miscellaneous age group in 1921. Our special clinics handle almost exclusively cases referred from the children's health clinics.

MATERNITY CENTER ASSOCIATION

The association organized in 1918 aims: to teach the public the vital importance of adequate maternity care; to secure, in coöperation with all existing agencies, such care for all expectant mothers. The budget for 1926 amounts to \$77,146.78, the funds coming from memberships, business enterprises, foundations, and so forth. Practical field service in New York City was given in 1925, also practical rural service in Tioga County, New York State; ambulatory clinics were conducted throughout Manhattan; educational literature was disseminated. Since 1922 there has been complete prenatal, delivery and postpartum service in one section of New York City, and before that, prenatal and postnatal only all over the city. The changes to be noted in the past five years are: the development of rural maternity service financed by the State Department of Health; the maintenance of experience field for nurses; and the special emphasis laid on the educational aspects of the work.

NATIONAL CHILD WELFARE ASSOCIATION

This association, organized in 1912 and incorporated in 1914, aims to promote sounder character, better trained intelligence and sturdier health among American children. The budget for 1926 is \$84,000.00, which comes from the sale of material and voluntary contributions. All educational material is sold at cost. Expense of maintaining information service, administration, and so forth, is met by private contributions. In 1925 the association originated and published educational posters, pamphlets and slides to arouse and educate the public and to assist parents, teachers, social workers and others in regard to the physical, mental and moral development of children. Information service on all phases of child care and development was maintained. A character training program called "Knighthood of Youth" was conducted for children from 7 to 12, in homes, schools, settlements, clubs and Sunday schools. To the poster and exhibit service

of 1920 there has been added the educational service bureau which sends a monthly bulletin of advice and suggestions to 10,000 school superintendents and principals. A series of three hygiene textbooks and a volume on character training have been published. While the poster service has been enlarged within the past five years on 500 different subjects (over 122,000 posters are sold each year) and interest in health work has not abated, the association is more and more emphasizing the moral and spiritual development of the child.

NATIONAL COUNCIL Y. M. C. A. BOYS' WORK DIVISION

The work of the National Council with the youth throughout the local associations in the United States is an all-round program. There are certain features that make for the development of health. Some of the salient figures relating to the physical work for boys are included in the following: 925 local associations report 820 paid physical directors and assistants; 547 of these associations have swimming pools; 246 have athletic fields. More than 510,000 different men and boy members of the local associations made use of the various physical activities of the association in 1925.

NEW YORK ASSOCIATION FOR IMPROVING THE CONDITION OF THE POOR

The association, formed in 1843, aims to diminish the prevalence and mitigate the pressure of poverty. The budget of \$1,116,334.00 comes from voluntary contributions. In comparing the work in 1925 with that done in 1920, there has been no change in type. The same type of work is being done, but more intensively and extensively. Both the relief and preventive health work in local districts has been made more intensive. The volume of country outing and fresh air work has been expanded. In the past five years there has been a shift of emphasis to more adequate and constructive relief work; special emphasis on the health problems of dependent families; further development of intensive health among Italians and colored people in two local health centers, with special emphasis on the preschool child.

NEW YORK NURSERY AND CHILD'S HOSPITAL

This organization, established in 1823, aims to reduce infant and maternal mortality, to care for sick and dependent children, and to advance preventive pediatrics and obstetrics. The budget for 1926 is \$534,000.00, which comes from public and private donations and patients' fees. In 1925 the work included hospital and dispensary obstetric service and service for children; with intensive social service for both; the provision of foster homes for dependent children; medical and research work. A comparison of the work done in 1920 and 1925 follows:

	1920	1925
Hospital patients	5,052	5,079
Dispensary visits	17,530	24,344
Outdoor deliveries.....	663	387
Visits to homes deliveries.....	7,973	5,538
Social services—cases.....	2,379	4,200
Social services—visits.....	6,221	11,433
Dependent children in foster homes.....	641	589

In the past five years emphasis has been put on preventive medicine by founding a research laboratory in children's diseases; by appointment and follow-up

system in the dispensary; by educational work in the dispensary and in homes through doubled social service staff; and by increased medical supervision of so-called "normal" children in foster homes.

NEW YORK TUBERCULOSIS AND HEALTH ASSOCIATION

The association was organized in 1919. Its objects are: the study of tuberculosis and of the means of preventing it; the dissemination of knowledge as to the nature of the disease, its causes and the methods of its prevention and of its treatment; the promotion of adequate facilities for the prevention of tuberculosis and for the care, treatment and economic rehabilitation of persons afflicted therewith; and the coördination of the work of public and private agencies engaged in any of the foregoing activities. The budget for 1926 is \$225,000.00, which comes from the Christmas Seal sale and memberships. The changes to be noted in the past five years are an extension of tuberculosis work into general health education, and the recent amalgamation of the New York Heart Association and the Committee on Community Dental Service with the New York Tuberculosis and Health Association.

STATE CHARITIES AID ASSOCIATION, STATE COMMITTEE ON TUBERCULOSIS AND PUBLIC HEALTH, AND THE DEPARTMENT OF COUNTY CHILDREN'S AGENCIES

This association was organized in 1907. The child health work of the State Committee on Tuberculosis and Public Health is done through education and publicity; by means of the Health Crusade; promotion of children's health camps; coöperation with the State Health Department in child health consultation clinics; promotion of public health nursing. The budget for the year 1926 is \$57,000.00 for general program, \$15,000.00 for diphtheria prevention. Funds for this committee are secured through the sale of Christmas Seals. The year 1925 has brought participation in an intensive campaign to eradicate diphtheria, always a menace to child health. Health teaching in schools has been emphasized. In the past five years greater emphasis possibly has been placed by local committees on tuberculosis and public health work as it pertains to child health. The last three years, especially, have seen the development of children's health camps.

In the Department of County Children's Agencies of the State Charities Aid Association, medical work is an incident in the program for children. The agencies stimulate better health provisions, including mental hygiene measures for dependent children. The agencies also secure medical and mental diagnosis and have assisted in preparing the way for the establishment of clinics. During the past five years greater care in both the physical and mental field is noted. Mental clinics have enormously increased throughout the state, due to the activity of the State Commission for Mental Defectives and the State Hospital Commission aided by the State Charities Aid Association. More thorough medical examinations of individual dependent children have become routine.

Rochester

THE TUBERCULOSIS AND HEALTH ASSOCIATION OF ROCHESTER AND MONROE COUNTY

The association was organized in 1917 and aims to promote and carry on such educational preventive and relief work as shall contribute to the improvement of health, with special emphasis on the prevention and control of tuberculosis. The 1926 budget is \$30,018.00 for city activities and \$7,600.00 for county activities. The

Rochester Community Chest contributes \$5,000.00 for the support of state and national work in lieu of the Christmas Seal sale in Rochester. Christmas Seals are sold in the county outside of Rochester. In addition \$800.00 was received from the Woman's Educational and Industrial Union toward the salary of an occupational therapy worker, and certain services of the association from the health education clinic brought in return of \$175.00. In 1925 the Rochester activities included a child health nutrition service; an information service; after-care, occupational therapy, home-bound and curative workshop service; publicity and health education and exhibit service; indoor fresh air aid, tuberculosis study, heart disease prevention service; and health examination service. The Monroe County activities outside of Rochester include school health service, consultation field service, health examination and health education service. The association is carrying on a number of child health education projects in the parochial schools. A preschool health habit class in coöperation with the Child Welfare Board, and in coöperation with the Department of Health Education of the Rochester Public Schools has just established a loan and supply service to furnish teachers in the county and city with constructive health education material at cost. The work in the county is carried on in coöperation with the district school superintendents. The association is thus able to reach every school child in the city and county.

Syracuse

CHILD HEALTH COMMITTEE

This committee was organized in 1918 and aims to further by any means in its power the health interests of the children of the community. The budget for 1926 is \$8,180.00 and comes from the Syracuse Community Chest. Well baby and prenatal clinics were held in 1925. More prenatal work is now being done than in 1920. In the past five years the nursing service has been coördinated with the city Department of Health which has largely taken over the baby clinic activities. The department has taken up prenatal work heretofore practically unprovided for.

DEPARTMENT OF HEALTH, BUREAU OF CHILD HYGIENE AND BUREAU OF PUBLIC HEALTH NURSING

The Bureau of Child Hygiene was organized in July, 1918. The city budget for the current year of \$9,700.00 is provided by taxation; the child health committee budget of \$8,000.00 comes from subscriptions to the Community Chest. In 1925 calls were made in the homes where there were new-born babies and birth certificates were left. Ten well baby conferences, with follow-up, were conducted. Five prenatal clinics were maintained, the medical service being furnished by the Syracuse Medical College, and the nursing service by the Health Department and the Child Health Committee nurses. In September, 1925, all phases of work conducted by the city were put on a generalized nursing plan, working in 15 districts with 5 specialized senior nurses and a director of nurses. The increase in service in the past five years is as follows: in 1920 there were 4 clinics, with an enrollment of 570 and 5,739 home visits; in 1925, 10 clinics with 28,184 home visits and 10,612 clinic visits.

Utica

THE BABY WELFARE COMMITTEE

This committee was organized in 1912, and incorporated in 1915. It aims to reduce the infant mortality of Utica and to increase the health and vitality of its children. The budget for 1926 is \$16,950.00, and comes from Utica Community

Chest. In 1925 the staff included a medical director, 8 doctors and 8 nurses. The nursing was done by districts. There were four stations in which bi-weekly baby and preschool clinics, and weekly prenatal clinics were held. There were Little Mothers' Leagues held in four public schools. In 1920 the staff included a medical director, 5 doctors, but no obstetrician, and 7 nurses. There were three stations then and clinics. Visiting was done only in families who brought their children to the clinics. Since then preschool and prenatal work has advanced; the nursing activities have amalgamated with the Utica Dispensary, the Oneida County Tuberculosis Committee and the Clothing Bureau to form the Utica Visiting Nurses Association, to try to cover the public health nursing in the city.

NORTH CAROLINA

STATE BOARD OF HEALTH, BUREAU OF MATERNITY AND INFANCY, RALEIGH

The bureau was organized April 1, 1922. The budget for the current year is \$49,519.00, of which \$27,259.00, comes from the federal government and \$22,259.00 from the state. In 1925 prenatal and baby clinics and the classes for the instruction of midwives were organized. Examinations have been made of children of preschool age, especially of those under two. An adequate nursing staff has endeavored to follow up these children to see that the defects found were corrected.

Kinston

CASWELL TRAINING SCHOOL

This school was organized in 1914, and aims to train and segregate the feeble-minded. The budget for 1926 is \$118,750.00 which was appropriated by the legislature. In 1925 academic, industrial and physical training were carried on.

OHIO

Cincinnati

THE BABIES' MILK FUND ASSOCIATION

This association was organized in June, 1910, and incorporated in 1919. It aims to promote child health. The budget of \$63,400.00 for 1926 comes from the Cincinnati Community Chest, Cincinnati Maternity Society, and the Junior League. In 1925 there were conducted: 6 child health stations; 4 stations for prenatal care, the prenatal and obstetrical work being done on a contract with the Cincinnati Maternity Society; an out-patient obstetrical department; a breast milk bureau; a brace shop; medical and nursing work in homes; a dental clinic; health supervision of 8 day nurseries; and health supervision of Protestant children of preschool age boarded in Cincinnati. The association has free milk where necessary for children under 6 years and for nursing mothers. Since 1920 the chief changes have been the establishment of 2 child health stations; the addition of 3 nurses to the staff; the taking over of the health supervision of the 8 day nurseries; and the opening of the brace shop.

CINCINNATI ANTI-TUBERCULOSIS LEAGUE

The association was formed in 1907. It assists in establishing and maintaining new facilities and institutions for prevention and treatment of tuberculosis, and in

bringing into coöperation existing institutions for that purpose to investigate local conditions and educate the public regarding the nature, treatment and prevention of tuberculosis. The budget for 1926 is \$31,000.00 and comes from the Community Chest and Council of Social Agencies. In 1925 the work included: health education work in the schools; industrial lectures in factories, and so forth. A handicraft department sanatorium has been assisted; Kroger Hills Camp has been helped; special literature, charts and bulletins dealing with tuberculosis prevention have been issued. Since 1920 the clinic has been taken over by the city Department of Health and other types of work extended and improved.

PUBLIC HEALTH FEDERATION

This Federation aims to do everything within its scope that will make for better health in Cincinnati. The budget for 1926 is \$12,448.00, and comes from the Community Chest. The work in 1925 was done through the Child Hygiene Council.

THE VISITING NURSE ASSOCIATION

This association was formed in 1909 and aims to give bedside nursing care to the sick in their homes. This includes prenatal, postnatal, child welfare, industrial and social work. The budget for 1926 is about \$40,000.00, and comes from the Community Chest, contract service and fee service. In the past five years the work has become more technical, more scientific and more intensive. There has been special follow-up work for infants under 1 year of age.

Cleveland

THE CATHERINE HORSTMANN HOME

The home was organized in 1907 and aims to care for and train young girls whose home environment is at fault. These girls are trained for business careers, as well as other occupations. The funds come from the Community Chest. In 1925, the number of girls fitted for business careers was greater than in 1920.

CHILDREN'S BUREAU OF CLEVELAND

This bureau was organized in April, 1921. The purpose of this organization is to develop community child caring programs for Cleveland and to perform the following common services: common social service in planning for needy children and particularly studying any requests for placement in institutions; common mental service; common health service; training in children's field; and a summer camp registry. The budget for 1926 is \$61,500.00 and comes from the Cleveland Community Fund. The association was originally formed as a common investigation bureau for institutions, but has developed into a functional group for children's fields with common services of case work, health service, mental study, and so forth.

THE CHILDREN'S FRESH AIR CAMP AND HOSPITAL

This organization, formed in 1889, aims to raise the standard of health of children of school age in the community through health education, and by providing actual physical care where medical, dental and nursing service is desirable. The budget for 1926 is \$48,085.00 and comes from the Community Fund, endowment, earnings and direct gifts. In 1925 health education was furnished to children and their families and care was given in the health school to those too much underweight to reach their normal weight in their home environment. Convalescent

care was given to children whose home conditions prohibited their immediate return from hospital beds. Since 1920 more attention has been paid the type of cases admitted and there has been closer coöperation with all agencies going into the homes and discovering physically unfit children. Since then the capacity of the institution in the summer months has been reduced in order to maintain the same high standard of child care the year around. Dismissed children have been asked to return every two weeks to be weighed and to report on their health program at home.

CHILDREN'S VILLAGE OF ST. VINCENT DE PAUL

The village was opened in September, 1925. Its aim is individualization of children in the cottage plan. The funds are obtained from Catholic charities and from the Welfare Federation of Cleveland. Dependent children received from the Children's Bureau of the city were cared for in 1925. In the last five years the old style institution life has changed to that of a family group life in cottages with greater freedom and many opportunities to develop a natural home spirit. There has been marked improvement in health conditions and standards have been raised. Isolation is established for the first three weeks with a hospital cottage and clinic for modern medical treatment.

CLEVELAND ASSOCIATED CHARITIES

The association, which was formed in 1900, aims to develop normal family life through case work with the individual family and its members. The budget for the current year is \$523,545.00, which comes from endowment, from the Community Fund through the Welfare Federation, and a small income from miscellaneous sources, such as sale of wood in connection with Wayfarer's Lodge. In 1925 there has been family case work done and work with transients. In the past five years there has been a steadily increasing emphasis on getting at the fundamental problems of the families who come to us with the result that there is greater understanding of personality and personality difficulties which are the basis of so many social problems.

The Home Economics Department was just in the process of organization in 1920, our first home economist having come during 1918. The budget book which this department, backed up by a very strong committee, has worked out, is now being used in all but five states of the country. The sewing center, formerly little but a storehouse for second hand clothing, has developed into a real sewing center where not only old clothing is collected but remodeled for practical use under the direction of sewing teachers. The value of this work is great in families in which the mother cannot do any other work outside the home, and needs to know more about the technic of sewing, and needs to be gotten out of her own home for an hour now and then. In connection with the sewing center is the Sewing Center Committee, composed of twelve devoted and loyal friends of the organization. This group has done a tremendous piece of publicity work in the community for the organization.

The Child Study Committee developed as a sub-committee of the Home Economics Committee and is composed of some of the best equipped professional people in the community. Among other things this group has worked out two child study questionnaires which have resulted in the deepening of our case work. With our increased effort to get at the fundamental problems in families we have

worked in closer and closer coöperation with the psychiatric clinics which themselves have been developments during the last few years. During the past year several of our workers have been released for a period of intensive work with the Child Guidance Clinic which is doing demonstration work in Cleveland.

CLEVELAND CHRISTIAN HOME FOR CHILDREN

This home, which was organized in 1902, is one of a chain of homes under the direction of The United Christian Missionary Society of St. Louis, Missouri. This organization aims to care for, educate and train orphans and dependent children. The budget for 1926 is \$18,000.00, coming from voluntary gifts from churches and individuals, \$4,000.00 from the Community Fund and aid from the Missionary Society when necessary. Within the last five years the home has moved into a new building with a capacity of 100 as compared with 40 in the old building.

CLEVELAND DAY NURSERY AND FREE KINDERGARTEN ASSOCIATION

The association was organized in 1882. It aims to establish and maintain free nurseries and kindergartens and to carry on such other kindred activities as may be decided upon. The budget for the current year is \$105,438.00 and funds come from endowment, earnings and the Community Fund. In 1925 the association conducted 5 nurseries for children from 6 months to 14 years of age; 4 kindergartens for children 4 and 5 years old; 1 nursery school for children from 20 months to 4 years; 1 kindergarten-primary training school, having an enrollment of 130 students. This year the establishment of a nursery school has been the outstanding innovation in the work of the association. As yet there is but one, but the policy of including younger children in the kindergarten department is being extended and will undoubtedly result in more nursery schools. The Child-Guidance Clinic under the auspices of the Commonwealth Foundation, has worked in close touch with the nurseries, especially in regard to the behavior problem of the preschool child.

The most significant change which this association has undergone in the past five years has been the coördination of the physical, educational and mental training of the child. The association first interested itself in the education of the children, then especially stressed the physical care; later became interested in the behavior problems and has for the last few years recognized the mistake of disassociating these various factors and the necessity of regarding as a whole the entire problem of the child—physical, educational and mental.

THE CLEVELAND PROTESTANT ORPHAN ASYLUM

The orphan asylum was formed in 1852. The aims are broadly, to care for dependent children, correct their defects, train them for family life in foster homes or in their reestablished family homes. Their length of stay in the institution is a little over six months on the average. The budget is \$55,000.00. The organization is supported by endowment funds. More corrective work was accomplished in 1925 than five years ago, and more attention paid to underweight children and to methods of bringing them up to normal weight. The establishment of a cottage group plan in the country equipped with every modern convenience and appliance for the care of dependent children has been accomplished in the last five years.

DISPENSARY OF BABIES' AND CHILDREN'S HOSPITAL OF UNIVERSITY HOSPITAL OF CLEVELAND

The organization, formed in 1906, aims to care for sick children whose parents cannot afford services of private physicians, and to educate physicians, medical student nurses and the public in general in the care of children under 14 years of age. The budget for 1926 of \$68,000.00 comes from the Community Fund and endowment. In 1925 clinics were held every afternoon and three mornings a week; there was a daily preschool dental clinic, and a daily light therapy clinic. An effort was made to educate mothers, physicians and the public in general in the value of manual expression of breast milk as a way of stimulating and increasing it. Work is carried on by four nurses who teach in prophylactic clinics, babies' and children's clinics and in homes. In the past five years the rural work has been discontinued. After a four years diphtheria prevention demonstration, the demonstration has been discontinued. A new hospital known as the Babies' and Children's Hospital of the University Hospital of Cleveland has been opened.

MERRICK HOUSE DAY NURSERY SETTLEMENT

The settlement, formed in 1919, aims to give nursery care to children of working mothers or fathers, also to supply as a part of its settlement activities, recreational and educational opportunities to school children and adults. The budget is \$29,479.00, funds coming from the Community Fund, nursery fees, dues from classes and clubs, room and board from resident workers. In the past five years the attendance has doubled. There has been an increase in staff of workers, thus enabling them to do more recreational work in the nursery.

RED CROSS TEACHING CENTER

This center was organized July, 1916, and aims to reach at least one woman in every home with the knowledge of how to keep herself and her family well, as well as to meet emergencies when they arise. The budget for 1926 is \$14,953.00, which comes from the Welfare Federation and earnings. In 1925 classes in health and home care of the sick were held for college and high school groups, mothers' clubs, girl scouts, business women, and corrective institutions. Classes in first aid to the injured were held for miscellaneous groups of women, boy scout leaders, firemen, and so forth. There were also life saving, or water first aid classes for miscellaneous groups of men and women. Since 1920 the work has increased in volume and intensity; health literature of all kinds has been distributed very widely to supplement class instruction. Almost 16,000 health bulletins are distributed yearly to industries, stores, institutions and individuals interested in health education. The instruction has become more comprehensive and of a better academic standard; the Board of Education has put three teachers in the high schools and is planning to incorporate the work in its 12-year health program. Life saving has been taken on and is in a state of development greater than the city has ever had before.

THE SALVATION ARMY HOME—MATERNITY HOSPITAL AND NURSERY

The organization was formed in 1892 and aims to care for unmarried mothers and their babies. In the nursery department children from 1 to 6 years of age are cared for. The budget for 1926 is \$23,934.00, and comes from the Community Fund and from small hospital fees when the patient is able to pay. In October,

1925, a separate home was opened for the care of the unmarried colored mothers, the obstetrical work still being done in the hospital.

THE SCHOOL OF NURSING, WESTERN RESERVE UNIVERSITY

The school was organized in 1921 as a department in the College for Women; in 1923 it became a separate school. This organization aims to educate nurses. The budget for 1926 is \$37,000.00, secured from private endowment and fees. There were courses for 5-year students, 3-year students, graduate nurses and college for women students in 1925.

UNIVERSITY PUBLIC HEALTH NURSING DISTRICT

The district was organized in February, 1917, and aims to provide field training for nurses wishing to take up public health nursing. The budget for 1926 is \$36,980.00, and comes from the Welfare Federation, city Department of Health, earnings and from the university. In 1925 the work included prenatal, infant welfare, preschool, tuberculosis, parochial school and immunization clinics; classes for expectant mothers and mothers of preschool children; home visiting—generalized service; prenatal, infant welfare, preschool, parochial school, communicable disease, tuberculosis, care of eyes by the State Department of Health, supervision of boarding homes, general bedside care and Metropolitan Life Insurance work. In 1920 there were only prenatal and infant welfare clinics. Home visiting did not include the infant eye work. In the past five years the teaching district has been used more as a health center. More clinics have been established and group teaching is being done. Work with expectant mothers and preschool group has increased, and the center has been used by more people as a source of information and advice in matters regarding health.

THE VISITING NURSE ASSOCIATION

The association was formed in 1901 and aims to provide registered nurses to give professional service, teach hygiene, take proper care of sick, prevent the spread of disease and provide such other aid as may from time to time seem desirable. The budget for 1926 is \$134,015.00, which comes from the Community Fund, earnings on endowments, insurance company contracts, and from patients. The types of work done in 1925 included: medical, surgical, obstetrical (prenatal, postnatal) and school work. A maternity clinic for maternity hospitals, was held and doctors were assisted in medical examinations for summer camp and day nurseries. In the past five years a new sub-station has been added, the number of field nurses doubled, and a new supervisor has been added.

Columbus

INSTRUCTIVE DISTRICT NURSING ASSOCIATION

This association was incorporated June 15, 1898, and aims to do generalized visiting nursing, and to conduct dispensary and infant weighing stations. The budget for 1926 is \$34,716.00 secured through endowment, service money and a community fund. In 1920 there were 8,119 patients and 37,692 visits; in 1925, 12,281 patients and 76,863 visits. Within the past five years the association has affiliated with the Board of Health. The work has increased in all branches of the service.

East Cleveland**EAST CLEVELAND CHILD WELFARE ASSOCIATION**

This association, which was organized in July, 1921, aims to carry on prophylactic work for children under school age. The budget for 1926 is \$6,220.00 and comes from the city by taxation. In 1925 the work included: feeding instruction; toxin-antitoxin, vaccinations; distribution of instructive literature, demonstrations; home visits by public health nurse; milk modification, and breast expression. The work was not in operation until July 12, 1921, but the clinics are getting larger and instruction is added continuously. This work was supported by the Community Fund until January 1, 1925, when the city took it over.

Glendale**COMMUNITY NURSE ASSOCIATION OF GLENDALE**

This association was formed in September, 1922, and aims to give to the village the services of a trained public health worker and a social worker. The budget for 1926 is \$3,450.00, the funds coming from the Community Chest of Hamilton County. The work done in 1925 included bedside nursing; public health nursing; school nursing; and special service including the giving of relief under the supervision of the Associated Charities.

Toledo**TOLEDO DISTRICT NURSE ASSOCIATION**

This association, organized in 1901, aims to give trained nursing service to the sick in their homes, instruction in personal hygiene, sanitation and prevention of disease, and to hold clinics for women and children. The budget for 1926 is \$82,731.00, and comes from the Community Chest and fees. In 1925 there were visits to the homes, clinics, classes in nutrition, posture, orthopedic, vocational work. Preventive and education work was emphasized. In 1920 there were 10,140 patients cared for and 71,897 visits made by nurses. In 1925 there were 15,332 patients cared for and 97,320 visits made by nurses. In the past five years the baby clinics or stations have increased from 8 to 13; preschool clinics, little mothers' classes and nutrition classes with 2 nutrition workers have been organized; a full-time vocational worker, and 2 nurses for orthopedic work have been employed, and there has been a reorganization of the Teaching District, with employment of additional nurses and a teaching supervisor.

OKLAHOMA**Oklahoma City****OKLAHOMA PUBLIC HEALTH ASSOCIATION**

This association was organized in 1917, and aims to promote health education. The budget for 1926 is \$20,000.00 and comes from the sale of Christmas Seals. In 1925 there were traveling tuberculosis and cancer clinics; there was promotion of a general child health education program emphasizing the Modern Health Crusade; poster and health play writing contests were conducted; there was inspection of school children by nurses, a campaign was promoted for full-time health departments in counties. In 1920 school child inspection campaign for establishment of tuberculosis sanatoria. In the past five years greater emphasis on habit formation as part of child health education program and increase in clinical activities have been made.

OKLAHOMA CITY PUBLIC HEALTH NURSING ASSOCIATION

The association was organized in July, 1921. The budget for 1926 is \$26,500.00, of which \$20,000.00 comes from the city, \$4,500.00 from the Board of Education, and it is estimated that \$2,000.00 comes from insurance company contracts. In 1925 general public health nursing, including school work was done. In 1920 there were specialized service, tuberculosis-visiting nursing and school nursing. In the past five years work of special agencies has been coördinated; general service includes prenatal, postnatal, infant welfare, school, tuberculosis, contagious disease and bedside nursing. Obstetric, child welfare and tuberculosis clinics have been held.

Tulsa

TULSA COUNTY PUBLIC HEALTH ASSOCIATION

This association was organized in September, 1918. The budget for 1926 is \$24,756.05 which comes from the sale of Christmas Seals, the Community Fund, special donations, the Junior League, and so forth. In 1925 the work included health education; inspection of country and parochial schools; instructive and bedside nursing and the holding of preventive clinics. When the work was organized there were tuberculosis clinics and a nursing service. Since then an enlarged general program and clinical nursing have been instituted.

OREGON

STATE DEPARTMENT OF HEALTH, BUREAU OF PUBLIC HEALTH
NURSING AND CHILD HYGIENE, PORTLAND

This bureau was organized in 1922. The budget for the current year is \$20,783.00, of which \$5,500.00 comes from state funds, \$5,000.00 bonus and \$10,283.00 from Sheppard-Towner funds. In 1925 there were 938 complete sets of prenatal and postnatal letters sent out to mothers in isolated districts. For the past year the Bureau of Child Hygiene has financed 10 nurses in the 5 full-time county units where an intensive maternity and infancy program has been carried on. Infant and preschool clinics, Little Mothers' classes, a dental survey, prenatal home visits, get ready for school clinics, crippled children's clinics, and so forth, have been held. Cases have been followed up and much has been done in both a remedial and educational way.

During August and September the Children's Bureau loaned us a clinician, Dr. Maude Kelly, who conducted 18 infant and preschool clinics over the state, with an attendance of over 1,000 children. These clinics were held in logging camps, isolated farming communities, and in the larger centers, and were well attended.

We are noting a very decided interest in public health work in this state. The young mothers are demanding the best care and advice possible for their children. Volunteer assistance has been given by 30 physicians, 50 nurses and more than 100 lay workers.

PENNSYLVANIA

STATE DEPARTMENT OF PUBLIC INSTRUCTION, BUREAU OF
HEALTH EDUCATION, HARRISBURG

This bureau was organized in 1920 and receives funds from state appropriations. In 1925 the work included the supervision of physical education, hygiene instruction and school nursing.

Berwick**RED CROSS PUBLIC HEALTH NURSING ASSOCIATION**

The association was organized in November, 1917, and aims to provide a community health nursing service. The budget for 1926 is \$4,000.00 which comes from the Community Chest, fees from factory and insurance company contracts, Christmas Seal sales, patients' fees and the American Car and Foundry Welfare Association. In 1925 there were instructive visiting nursing, prenatal care, bedside care for maternity, chronic and acute cases; infant and child welfare stations; social service, follow-up and weighing of 3,500 school children were also carried on. In 1920 the work was mostly bedside nursing and work in the schools. Last year there were well baby clinics weekly. A mental clinic under H. V. Pike, M.D., was held monthly. The nurses are called upon more and more for the social service work and for the follow-up work of the medical inspection.

Bethlehem**BABY HEALTH STATION OF BETHLEHEM**

The station was organized in 1915 for summer months only and 1917 year-round service started, its aims being to prevent or lower infant mortality, and to teach health principles generally, stressing mainly the care of the child up to school age. The budget for the current fiscal year is \$10,450.00 and comes from the Community Chest and state (Sheppard-Towner fund) and city. In 1925 visits were made to mothers and babies in homes to instruct them in health matters; weekly clinics were held in various parts of the city where babies were weighed, measured and examined and advice given where needed. In comparing the type of work done in 1925 with that done in 1920 there has been no change in type but the scope was enlarged to cover the whole city. The staff was increased from 2 to 5 nurses. Within the last month the boards of directors of the Baby Health Station and Visiting Nurse Association agreed to combine forces and start doing a generalized work, the combined forces having 9 nurses and a superintendent. The name of the organization is to be the Bethlehem Public Health Nursing Association.

Erie**ERIE ANTI-TUBERCULOSIS SOCIETY**

The society aims to do educational health work, assist in financing The State Chest Clinic and Health Centers, to find early cases, and to assist in child health and school child work as well as to care for contact cases. The budget of \$9,000.00 comes from the sale of Christmas Seals and Health Bonds. Three extension clinics have been organized in 1925, financed and managed with follow-up work of same. The Seal sale which amounted to \$3,000.00 in 1920 has been increased to \$9,000.00 in 1925.

Freeland**FREELAND COÖPERATIVE MATERNITY AND CHILD WELFARE HOSPITAL ASSOCIATION**

The association, formed in 1921, aims to promote and protect the health of mothers and their children. The funds come from membership fees, bonds and income from patients treated. There is no fixed budget. The types of work in 1925 included tonsillectomies, maternity and keep well baby clinics, and gynecological examinations. Plans have been made for the coming year to advance the outpatient, prenatal and child welfare movements. People are beginning to evi-

dence appreciation of the advantages in infant feeding and practical nursing under proper direction, and the possibility for thorough enucleation of tonsils.

Lansdowne

VISITING NURSE ASSOCIATION OF EASTERN DELAWARE COUNTY

The association, organized in 1909, aims to care for the sick in their homes, to teach others to care for the sick, to promote health and healthy conditions in the communities; to teach children health habits and to teach mothers how to care for babies. The budget of \$19,000.00 comes from fees, contracts with local school boards for school nursing, and voluntary contributions. The following types of work were done in 1925: generalized public health work; care of the sick including communicable disease nursing and delivery service; school nursing, child welfare health classes, and so forth. Since 1920 the work has grown from a one nurse service to eight; the care of contagious case and delivery service has been added; instead of one health center, there are five at present; school nursing has spread from one school to nineteen. In the past five years there has been an increase of from 20 to 40 per cent in amount of money received from school nursing, insurance company contracts and fees from patients.

Philadelphia

THE BABIES' HOSPITAL OF PHILADELPHIA

The hospital, organized in 1911, aims to provide treatment and care of sick babies and in connection therewith to instruct and train suitable persons in the duties of caring for babies and to institute plans and means for the study, prevention and cure of the diseases of early life. The budget of approximately \$72,000.00 comes from the Welfare Federation of Philadelphia. In 1925 preventive and remedial work have been done. Under these two main headings come the subdivisions that cover all our activities, that is, the hospitalization of our sickest cases; medical and social investigation and follow-up work in the homes; dispensary care which includes medical, surgical, dental, nutrition, prenatal, diagnostic and physiotherapy clinics.

In 1920 simple remedial work was done. Sick babies were brought to one medical clinic, held once a day, and there was some home visiting done by social workers and trained nurses to see that the directions of the doctors were carried out. Critically ill children were referred to other organizations. The outstanding feature of the change in work during the last five years has been the growth and development of dispensary and preventive work. The schedule now includes four daily medical clinics and a varying number of special clinics, so that on busy days nine active clinics are run and on the least busy days there are five. Hospitalization of sickest cases is now possible.

THE COMMUNITY HEALTH CENTER

The center was opened in March, 1921. Among the aims of the organization are the following: the making of diagnostic health examinations, psychometric and vocational guidance examinations, neuropsychiatric examinations; the maintenance of a mental hygiene clinic for preschool age children; laboratory work; dental care given to all clients coming for physical examinations; a health education and nutritional program carried out consisting of teaching in homes, food demonstrations, nutrition clubs, supper clubs, lectures, and motion pictures.

All of this work has been done during 1925. The budget for 1926 is approximately \$22,265.00 and the funds come from the Federation of Jewish Charities of Philadelphia. Since 1921 the work has been extended to include the mental department, dental clinics, and health extension and nutritional program. The history of the center has been one of constant growth and the addition of new departments.

PENNSYLVANIA TUBERCULOSIS SOCIETY

The society was organized in 1892 to prevent and control tuberculosis. The budget for 1926 is \$110,908.00, including \$31,000.00 as a revolving fund for purchase and resale of literature and Christmas Seal sale supplies, scales and health entertainers; \$25,500.00 appropriation to the national association. The funds come from the sale of Christmas Seals, and about \$1,500.00 from memberships and contributions.

In 1925 the work included: organization, field and publicity service; sale and free distribution of literature; health education service; legislative service; industrial health service; case-finding survey; assistance in clinic work; Annual Conference on Tuberculosis; publication of a monthly bulletin; organization of Christmas Seal sale for state. The work has increased greatly since 1920. The organization throughout the state has been much strengthened; programs of local affiliated agencies have been greatly improved; there has been a large increase in the number of trained workers employed locally; funds raised through Christmas Seal sale increased from \$368,358.00 to \$500,000.00. Less money was spent on relief and far more on constructive health education; case finding and care of the tuberculous, with great emphasis on the child side of the tuberculosis prevention problem.

PHILADELPHIA ASSOCIATION OF DAY NURSERIES

This association was organized in 1908, and aims to establish and maintain the highest standards of child care in nurseries and to give constructive service to families to which children belong. The budget for the current fiscal year is \$4,500.00 and comes from the Welfare Federation of Philadelphia and income from endowment and membership fees. In 1925 the work included consultations, surveys, conferences, committee meetings and coöperation with other welfare agencies. Since 1920 the health work, dietary and mothers' clubs have been much improved. Central financing has been brought about through the Welfare Federation. In the past five years there has been a growing consciousness of need for more standardization and closer coöperation with other agencies.

PHILADELPHIA CHILD HEALTH SOCIETY

This society was organized in 1913. Its aims are the promotion of child health through research, education and demonstration with the coöperation of public and private social and health agencies and voluntary community groups. The method is to study the needs, demonstrate the value of various procedures for the improvement of child health and to secure their permanent adoption and extension through government and other agencies. The budget for the current fiscal year is \$19,137.00 and comes from the Welfare Federation and from the sale of publications. The types of work in 1925 are as follows: nutrition and mouth hygiene activities; these included: programs, clinics and classes for children, prenatal and postnatal mothers through health centers, schools, hospitals and other agencies; lecture courses for nurses, teachers and professional schools; preschool demon-

stration, with coöperation of school and health authorities; work is being done in a public school with the preschool children in the district of this school. There have been mental and physical examinations, follow-up for correction of defects; general health supervision. Prenatal care includes: effort through committees of physicians and workers, lectures, motion pictures, radio and the distribution of literature, to arouse interest in the need for care and to improve the character and increase the amount of prenatal care given; annual survey, questionnaire and record keeping sheet. The Sanitary League is a city-wide citizens group for the extermination of the fly by the elimination of its breeding places, and the securing of better health through a cleaner city. There have been Little Mothers' Leagues; May Day—Child Health Activities—under our direction; consulting bureau on nutrition; information service on child health films, slides and literature; publications on nutrition, mouth hygiene, prenatal care and Little Mothers' Leagues. A comparison of the work in 1925 with that of 1920 shows that there has been no significant change in the work in the last five years. The year 1920 culminated a three years' program of war time work—the administration and financing of the activities of the Child Welfare Committee of the Philadelphia District, Pennsylvania Committee of Public Safety. In 1921 we reverted to our prewar type of work in keeping with the aims of the organization as above described.

PHILADELPHIA HEALTH COUNCIL AND TUBERCULOSIS COMMITTEE

This committee was organized in 1919, and aims to promote the health of citizens of Philadelphia by educational or other methods as may be from time to time adopted through the efficient administration of the energies of private citizens working in conjunction with the municipal, state and national authorities. The budget for the current fiscal year is \$134,000.00 and comes from the Christmas Seal sale. The year of 1925 was a year of expansion of the work of the Health Council. In May a new negro clinic was established; in June a demonstration of the sun-cure at Chestnut Hill began; in September a full-time medical secretary was added to the staff of the council; in October a demonstration of school nursing began in four parochial schools, and during the same month a placement service for cardiac cases and arrested cases of tuberculosis was begun. In December we conducted a most successful Seal sale. A total of 542,573 pamphlets on health were distributed during the year; 44 columns of space was secured by the council in newspapers; extensive statistical and research service has been given, including tabulations of health examinations; tuberculosis deaths by weeks and quarters have been secured and rates figured; a study of the care of tuberculous children in this and other cities was made for members of the Board of Education; tables were prepared showing the clinic work done in the Phipps Institute for the year ending January 31, 1925; a study was made as to the present condition of childhood tuberculosis in Pennsylvania; death rates from scarlet fever; health work among negroes in the United States; tuberculosis among Jews in Philadelphia. The work of the child health service, included among other things, sun-cure demonstrations, school nursing demonstrations in parochial schools. There has been an increase in the work carried on by the clinic and nursing service among negroes. Constant progress along methodical lines has been made in the promotion of health.

PHILADELPHIA PEDIATRIC SOCIETY

This society, organized in 1896, aims to make a scientific study of the healthy and sick child, and of disease prevention, and also to support public health meas-

ures, especially certification of milk in Philadelphia. During 1925, lectures, clinical meetings and radio talks were given. A permanent endowment of annual Frederick A. Packard Lecture has been made within the last five years.

ST. CHRISTOPHER'S HOSPITAL FOR CHILDREN

The hospital was organized in 1875 and the social service department in 1909. This hospital takes care of sick children from birth to 14 years in its wards and in its out-patient department. It aims to prevent disease through the work of the department of preventive medicine. The social service department does health and intensive medical case work, and does medical follow-up for babies and older children. Student nurses are given lectures and field work in the social service department. The budget for the current fiscal year is under administration and comes from the state, the Welfare Federation and from patients.

In 1920 the social service department had 2 workers and in 1925, 5 workers, 10 volunteers and 1 secretary. During the past five years the out-patient department has grown in actual numbers of cases treated and in the number of clinics held. The social service department has placed workers in the clinics, has done more intensive follow-up work, and has aided in the organization of the department of preventive medicine.

WHITE-WILLIAMS FOUNDATION

The White-Williams Foundation was organized in 1800 as the Magdalen Society. "This Foundation aims to aid, in all ways possible, in the improvement of personal and social conditions, institutions and procedures; and in the progressive solution of social, economic and civic problems, particularly such problems, conditions, institutions and procedures as affect or may affect the immediate or ultimate interests of children and youth of school age." The budget for 1926 is \$62,911.00, which comes from endowment, special gifts, and from the Welfare Federation. In 1925 there was social work carried on in six different types of public schools, namely: primary, foreign neighborhood grade, colored neighborhood grade, American neighborhood grade, junior high and girls' trade; social work was carried on in the parish schools of the Roman Catholic Church; vocational guidance and placement work were undertaken in the Junior Employment Service of the public schools; a research worker in industry was appointed; scholarships were awarded amounting to about \$10,000 a year, with educational and social guidance for children who without financial help would be obliged to leave school; training was given to junior high school teachers in social case work so that they might become school counselors in their own schools; in coöperation with the Pennsylvania School of Social and Health Work, Swarthmore College and the University of Pennsylvania, lectures and field work were given to teachers that they might understand the meaning of school counseling, or visiting teaching as the work is generally designated. The type of work has not changed since 1920, but the White-Williams Foundation has been dropping those parts of it which the public schools have taken over. At the annual meeting in February, 1920, the work which is still being done was outlined, and in addition the White-Williams Foundation placed social workers in a school for special classes, a high school for girls, a high school for boys, and continued to keep a worker in the Bureau of Compulsory Education. At that time, also, a policy was adopted to give up the work as it went into the public schools. In July, 1924, the worker in the Bureau of Compulsory Education became a supervisor of a district, and a social worker in that department was placed in charge of the social work with ten assistants. In the

fall of that year, the Bureau of Compulsory Education began to do social work in the special classes. In February, 1925, seven teachers who had been doing social case work in the high schools under White-Williams supervision, began to do the work independently, and the Foundation gave up its connection with the high schools. In July, 1925, the Foundation gave up connection with the Junior Employment Service, as the Board of Public Education supplied a sufficient number of workers to take care of that. It also gave up the research secretary, who was making a study of industries. This work will eventually be taken over by the Junior Employment Service.

During 1923 and 1924, there was a special project made possible by money contributed by the Commonwealth Fund of New York. This was the awarding of fellowships to students who wanted to prepare for counseling. Their field work was done in the White-Williams Foundation, and their academic work in the Pennsylvania School of Social and Health Work, whose associate director was appointed consultant for the White-Williams Foundation.

Pittsburgh

PITTSBURGH CHILD HEALTH COUNCIL

The council was organized in 1923 and aims, through joint effort of all individuals and organizations in Pittsburgh and Allegheny County interested in child welfare, to create a broader interest in the health and well-being of all children. The budget for the current fiscal year is \$1,000.00, furnished by contributions.

PUBLIC HEALTH NURSING ASSOCIATION

This association, formed in 1919, aims to provide skilled nursing care on a visiting basis to the sick in their homes, and to teach the principles of hygiene and sanitation, the causes and prevention of disease. The budget for 1926 is \$150,000.00 and comes from private voluntary contributions, the Red Cross, local funds from outlying committees, insurance company contracts, industries and corporations and from affiliated agencies.

Generalized public health work has been done in 1925, including bedside care of acute and chronic diseases; all types of communicable diseases including tuberculosis, prenatal, maternity and child welfare nursing. Since 1920 the nursing care of communicable disease, prenatal, infant and preschool work have been added and ten well-baby conferences have been established. The original staff has been increased from 28 to 68 nurses and the service has been developed from visiting nursing to public health nursing.

TUBERCULOSIS LEAGUE OF PITTSBURGH

The league was organized in 1907. It aims to prevent and cure tuberculosis. In 1925 there was hospital care for tuberculosis; there were 6 dispensaries for diagnosis; nurses for case finding and follow-up; health teaching in schools; and general preventive education through literature and talks, and so forth. The budget for 1926 is \$184,000.00 and comes from the sale of Christmas Seals, state and county aid, and private subscriptions.

Reading

VISITING NURSE ASSOCIATION

This association was organized in March, 1909. It aims to promote the health of the community by teaching preventive methods and to give service to the public at large. The budget for 1926 is \$69,345.00, which comes from the Welfare Fed-

eration Community Chest, appropriation by the City Department of Child Welfare, insurance company contracts, patients' fees and industrial fees.

In 1925 the work included: general bedside nursing; baby welfare; prenatal and maternity delivery service; communicable disease service; and nursing service in the genito-urinary clinic. The three latter services have been added since 1920. In the past five years the preventive work has increased, and a larger territory has been covered.

Swarthmore

SWARTHMORE CHAUTAUQUA ASSOCIATION

This association was organized in 1912 and conducts Chautauquas in towns and cities of eastern Atlantic states, bringing high-grade lectures, entertainment and music at a cost within the reach of everybody. The budget for 1926 is \$750,000.00 and comes from the sale of season tickets.

York

VISITING NURSE ASSOCIATION

This association was organized in January, 1909, and aims to do bedside nursing for all sick patients reported; communicable disease nursing; school nursing; maternity work, including delivery; and infant and preschool clinic work. The budget for 1926 is \$34,000.00 and comes from Annual Red Letter Day, the School Board, the Board of Health, the County Poor Board, patients' fees, and from insurance company contracts. In the past five years the rural service has been developed.

RHODE ISLAND

STATE DEPARTMENT OF HEALTH, CHILD WELFARE DIVISION, PROVIDENCE

This division was organized in 1919. The budget for the current year is \$20,000.00 which comes from the state treasury and from the Sheppard-Towner funds. In 1925 the work included systematic home visiting of children from birth to 5 years; regular visits to expectant mothers; the holding of well baby conferences; the inspection of children under 5 arriving on transatlantic steamers; the production and use of motion pictures; and the distribution of literature. In the past five years the territory covered in home visiting has been increased, North Providence, Woonsocket, Oranston having been added. The staff has increased from 4 to 10.

Auburn

RHODE ISLAND BRANCH OF THE NATIONAL CONGRESS OF PARENTS AND TEACHERS

This branch of the congress was organized in 1909 and aims to unite home and school and safeguard the youth of the land. The approximate budget for the current fiscal year is \$3,500.00 which comes from membership dues and one large money raising social event. In 1925 the organization coöperated with educators, social workers and legislators to secure the best physical, mental and moral training for the young; raise the standards of motherhood; and to establish juvenile protection and good health. In 1925 the work included helping with the well baby

clinics, recreation and mental health work. No significant changes have taken place in the past five years.

The work of the Congress of Parents and Teachers is largely coöperative in Rhode Island, due to lack of funds and type of membership, the latter a fluctuating and ever changing quantity. The state congress is formed from about 140 local school or community Parent-Teacher Clubs, individual dues to which are usually fifty cents.

Providence

CITY HEALTH DEPARTMENT, CHILD HYGIENE DIVISION

This division was organized in 1913. The budget of \$40,610.00 was made by appropriation from the city treasury by the Common Council. In 1925 the types of work were infant welfare work, including the supervision of babies delivered by midwives, the distribution of birth certificates and the supervision of boarding homes; and school health service, including the physical examination and nursing follow-up of school children. The service has grown generally in the past five years. In 1925 there were 12 child welfare stations under child welfare committee physicians furnished by the health department. The midwives and the babies delivered by them are supervised by five nurses. The health supervision of school children has a staff of 8 physicians, 1 dentist, 2 oculists, 15 school nurses, 1 psychiatrist, 1 psychiatric nurse, 1 psychiatric clinic, and 1 clerk. There are 5 dental clinics under private auspices and 2 eye clinics.

PROVIDENCE CHILD WELFARE COMMITTEE

This committee was organized in November, 1913. Its aim is to establish child welfare stations and to give general supervision. The funds come from dues.

PROVIDENCE DISTRICT NURSING ASSOCIATION

This association, organized in 1900, aims to nurse the sick, to prevent disease and to promote health. The estimated budget for 1926 is \$106,000.00, which comes from city appropriation, annual subscribers, endowments, receipts from patients and insurance companies and from the annual tag day. The work in 1925 included: general bedside nursing; child welfare, including prenatal work; tuberculosis; venereal disease; and mental hygiene. In the past six years the volume of work has increased and is better in quality. Mental hygiene has been added; six nurses have been added to the staff; prenatal nursing has been developed; positive preschool work has begun. There has been a marked increase in interest on part of doctors and public.

SOUTH DAKOTA

STATE BOARD OF HEALTH, DIVISION OF CHILD HYGIENE, WAUBAY

This division was organized in January, 1922. The budget for the current year is \$23,586.00, and comes from state appropriation and Sheppard-Towner allotment. In 1925 the work included: assistance in employment of county nurses; assistance with maternity and infancy work of whole-time county health departments; securing surgical treatment for indigent crippled children; mailing prenatal instructions; conducting mothers' classes, prenatal and preschool clinics; supervision of birth report records; sending a mother's book to the parents immediately upon the receipt of the report of a birth; making regulations for and

supervising inspections of maternity homes of the state; maintaining and directing the Division of Public Health Nursing, of which there is one supervisor. The latest phase of educational work in the Division of Child Hygiene is the organization of the mothers' classes. Van Blarcom's *Getting Ready to be a Mother* has been carefully outlined in eight lessons, the last two of which are demonstrations of materials necessary for confinement and for the new baby. Along with each of the other six lessons, a demonstration is given of some phase of the care of the baby during the first month of life.

In the course of the prenatal clinics during a year's time, a number of children are examined whose births have not been reported. A letter is written to the mother of each of these children explaining the importance of birth registration and enclosing blanks for reporting. Practically all of these cases are reported within a few months after the letters are sent out. The Division of Vital Statistics writes to the parents of each child whose birth is reported to the State Board of Health for verification of the information contained in the birth reports. This year we have added to that inquiry a question as to whether or not the baby was crippled or deformed in any way at the time of birth. In this way we can get in touch with children in which early treatment will save surgical treatment later in life and in some of which greater deformity can be prevented.

TENNESSEE

STATE DEPARTMENT OF HEALTH, DIVISION OF CHILD HYGIENE AND PUBLIC HEALTH NURSING, NASHVILLE

This division was organized May, 1922. The budget for the current fiscal year is \$50,000.00 plus variable amounts from counties. The funds come from federal, state and county treasuries. In 1925 the types of work included: prenatal and postnatal work; classes for mothers and for little mothers; baby conferences and home visits; midwife classes, school work, demonstrations and talks. Both the director of this division and the doctor who assists him and the two staff nurses work in field and office. Until 1925 no school work was done by this division. Aside from this the plans and policy of the work in 1925 were the same as in 1922, the only difference being in the expansion and development of the work.

Memphis

MEMPHIS CHILD GUIDANCE CLINIC

This clinic was organized in April, 1924, and aims to study and treat children who show undesirable behavior. The budget for 1926 is \$21,000.00 which comes from the Community Fund. In 1925 the clinic worked with problem children of schools, social agencies, juvenile court and those referred by their parents. Some survey work was undertaken and consultation work with social agencies with problem adults.

DEPARTMENT OF NURSING EDUCATION, GEORGE PEABODY COLLEGE

This department was organized in 1917 and aims to prepare graduate nurses for community health service, especially in the rural South, and to make a contribution to the Department of Health Education. The budget for 1926 is approximately \$12,000.00 and comes from Peabody College. In 1925 students were prepared to do public health nursing.

TEXAS

STATE BOARD OF HEALTH, BUREAU OF CHILD HYGIENE, AUSTIN

The bureau was organized in September, 1919. The budget for the fiscal year is \$65,701.00 of which \$35,350.00 is from federal funds and \$30,350.00 from state funds. In 1925 an educational program was carried out according to the Maternity and Infancy Act. The county budget was provided by the county, the state matching county funds. The nurse devoted half of her time to the instruction of expectant mothers; to holding midwife classes; to infant and preschool conferences; and to junior and adult health clubs. The balance of time is devoted to health supervision of school children. In 1920 the county nursing service was financed by local Red Cross chapters under the supervision of the Child Hygiene Bureau. The work was mainly bedside nursing and schoolroom inspection. Educational program was not stressed to any great extent. Now the work has changed to educational work for expectant mothers and mothers of infant and preschool children. The health of the school child is still supervised but not over one-half of the nurse's time is devoted to this. During these past five years there has come about a gradual recognition of the need of health instruction through increasing demands for school nurses whereas in the beginning school authorities were not interested. There is an interest in coöperation between the laity and the medical profession in rural communities where nurses are placed. There are increasing demands made by new counties for a nursing service.

VIRGINIA

STATE BOARD OF HEALTH, BUREAU OF CHILD WELFARE, RICHMOND

The Bureau of Child Welfare was organized in 1918. The budget for the fiscal year is \$63,574.00, which comes from the state legislature and the United States Treasury. In 1925 the work included: teacher training courses in school hygiene; a correspondence course in physical inspection and school hygiene; health leagues for school children; physical inspection of school children and dental corrections; supervision of maternity homes; midwife education; correspondence course for mothers; parent's institutes; child welfare conferences; public health nursing activities; training of public health nurses through rural training center; and the distribution of literature. The important changes which have taken place in the past five years are the introduction of correspondence courses in physical inspection in school hygiene; the establishment of dental corrective clinics; the training of public health nurses through rural training centers. But most important is the change of viewpoint. In 1920 the search was for the defective child; later the correction of the defective child; while in 1925 the physically fit child is sought out and ways of keeping him fit are found.

Norfolk

NORFOLK CITY UNION OF THE KINGS DAUGHTERS

This union, organized in 1896, aims to give to the people of Norfolk the best home nursing possible under existing circumstances, and to give to the children of the poor, through clinics, the medical attention of specialists. The budget for 1926 is \$44,342.00 and comes from the city of Norfolk, insurance company contracts, subscriptions, voluntary contributions, circles of the order, "Block Day," and from one public appeal. In 1925 the work included: visiting nurse service;

children's clinics; and service in health stations, or district offices; well baby conferences; mothers' clubs; home nursing classes and prenatal clinics. In 1920 there was only the visiting nurse service and the children's clinic. In 1925 there are four health stations, opened since 1922, where classes, clubs and conferences are held. There has been a continuous growth in the organization. In 1920 the clinic attendance was 6,978; in 1925 it will probably reach 12,000. In 1920 the number of visits was 27,218; 1925, approximately 35,000.

WASHINGTON

Seattle

PUBLIC HEALTH LEAGUE OF WASHINGTON

The league was organized in October, 1920. In 1925 health articles were supplied to 55 newspapers; radio addresses were given by physicians; public health meetings were held; legislation protecting public health was instituted and that dangerous to public health combated. The campaign was furthered to prevent goiter by giving iodine treatments in the schools.

WISCONSIN

CITY HEALTH DEPARTMENT, DIVISION OF CHILD HYGIENE, MILWAUKEE

The Division of Child Hygiene was established in June, 1912. The nursing service is carried on by the Nurses' Division. The budget for the current fiscal year is \$48,401.00. In 1925 there were 16 child welfare clinics in the city which are toxin-antitoxin stations for children under school age. Special literature on toxin-antitoxin and "Baby's Height and Weight Records" are distributed in these clinics. All new-born babies are visited and a certificate of birth registration is left at the time of this call, also printed matter on child care. There is now a special child welfare supervisor. Two nurses were stationed for prenatal and obstetrical work in the Milwaukee Maternity Hospital. Maternity homes and baby boarding homes were inspected and licensed. Day nursery children were inspected, and a day nursery ordinance has been passed by the Council.

Milwaukee

MILWAUKEE INFANTS HOSPITAL

This hospital, organized in January, 1902, aims to establish and maintain a home for medical care and nursing for children under 2 years of age and to maintain a school for training young women in the care and feeding of infants. The budget for 1926 is \$37,000.00, received from private contributions, through Milwaukee Community Fund. In 1925 there was hospital care for children under 2 years; the milk laboratory sent out 62,431 formulae to all parts of the city; medical clinics were held for infants; and a breast milk bureau was established. All the work is now better organized than in 1920 and the laboratory has been established since then.

VISITING NURSE ASSOCIATION

This association organized in 1907 aims to care for the sick in their homes; to teach the family to care for the patient; and teach health habits and home hygiene. The budget for 1926 is \$85,000.00 and comes from the Community Fund, from

insurance company contracts, fees from patients and from industries. In 1925 group instruction was given to expectant mothers; there were: bedside nursing; teaching and supervisory visits in the home to prenatal patients; nursing care was given to women at time of confinement, to postpartum and postnatal patients, to all types of medical cases (including all types of communicable diseases, chronic and surgical conditions), and industrial nursing was provided. In 1920 there was no intensive prenatal service, no delivery service and no communicable disease nursing. In the past five years an instructor and two supervisors have been added to the staff; the headquarters space has been increased, and two sub-stations have been established. A medical advisory board has been appointed.

Racine

RACINE CHAPTER, AMERICAN RED CROSS

The Child Welfare Division was organized in September, 1922. The budget for the current fiscal year is \$3,000.00. In 1925 there were three child welfare stations each open once a week for the examination of well children from birth to 6 years of age. Home calls were made on children visiting the stations and where necessary demonstrations of infant care and preparation of food were given. A limited number of prenatal calls were also made. Since organization there has been increased interest in the preschool child in the community and more well children have been taken to their family physicians for examination.

HAWAII

Wailuku, Maui, T. H.

ALEXANDER HOUSE SETTLEMENT

This settlement was organized in 1901 and aims to help the community in its mode of living. The budget for 1926 is \$30,000.00, the funds coming from memberships, personal contributions and from plantations. We are an extramural settlement and have health athletics, boy and girl scouts and a general settlement program. In comparing the work done in 1925 to that in 1920, it was found to have enlarged and broadened considerably, especially in matters of nutrition and health.

PHILIPPINE ISLANDS

Manila

PHILIPPINES CHAPTER, AMERICAN RED CROSS, HEALTH AND NURSING DEPARTMENT

This chapter was organized in December, 1917, its aims being to better the health of the people, and to raise the standard of nursing in the Philippines. The budget for the entire archipelago for 1926, which includes all services, is \$157,000.00; for the health and nursing budget for the entire Philippines, it is \$97,000.00. The funds are secured from memberships and donations. The nursing department budget is covered by appropriation from the general fund. The types of work done in 1925 included: school and community nursing; health centers; classes in home hygiene and care of the sick. In 1920 the activity was practically all puericulture center work, the centers being conducted by the Red Cross alone or in conjunction with the office of the Commissioner of Public Welfare. In 1925, all but two provincial puericulture centers and the Manila Health Center were

transferred to the office of the Commissioner of Public Welfare, the Red Cross continuing its policy of carrying on school and community nursing only.

From 1920 to 1923, the service grew rapidly; the staff increased from one director of the work, an American, but not a nurse, and one staff nurse, a Filipino, to one nurse supervisor and a staff of nurses and nurses' aids all doing puericulture center work and home visiting. Necessary retrenchment began in January, 1923. The remaining joint puericulture centers were turned over as rapidly as possible to the Bureau of Public Welfare, and following the new policy new school and community nursing only were started. At present the administrative staff consists of 1 American director of Nursing, 4 field supervisors and 1 supervisor of home hygiene and care of the sick. The nursing staff numbers 52, and covers 29 provinces. This number has been fairly constant during the last six months and will continue with slight variation during the coming year, demonstrating that the nursing service in the Philippines is now on a fairly stable basis.

The supervising nurses have all had post-graduate work in public health nursing in the United States, one of them having received her bachelor's degree from Teachers College. The training schools in the Philippines are each year turning out a better type of nurse and consequently public health nursing in this country is constantly improving.

CANADA

PROVINCE OF BRITISH COLUMBIA

Victoria

PROVINCIAL BOARD OF HEALTH

PUBLIC HEALTH NURSING DIVISION

This division was formed in 1921. The budget for 1926 is \$12,000.00, for public health nursing, including child welfare work; salaries are not included in this budget. The funds are secured through government appropriations. Voluntary organizations assist financially in various districts as the occasion warrants it. The work done in 1925 included: prenatal care; complete record of child for 2 years, then recorded as preschool; at 6 years the child enters school and comes under medical examination by physician yearly with follow-up work by school nurse. A complete record is kept of the child until he leaves school. The work has expanded a great deal as compared with that done in 1920. The organization and work has expanded and there has been much improvement in the public's attitude. Statistics show that during the past five years infant mortality has been lowered; there is much better control of infectious diseases; and much improvement as to malnutrition. The most significant change is the progressive change in the attitude of the public.

PROVINCE OF NEW BRUNSWICK

Fredericton

DEPARTMENT OF HEALTH

PUBLIC HEALTH NURSING SERVICE

This service was organized in November, 1922. The budget for 1926 is approximately \$4,000.00, the funds coming from government appropriation and

public subscription. The types of work in 1925 include: public health nursing; school inspection clinics; dental and medical clinics; summer camps, and so forth.

PROVINCE OF NOVA SCOTIA

Halifax

MASSACHUSETTS HALIFAX HEALTH COMMISSION

This commission was organized in September, 1919, and aims to undertake and carry into effect whatever in its opinion may make for the restoration and improvement of the sanitary conditions of the city of Halifax and the town of Dartmouth, and the health of the inhabitants of this city and town. The budget for 1926 is approximately \$32,285.00. The types of work in 1925 included: a public nursing program, purely instructional; a department of tuberculosis with a full-time officer; publicity and educational work; prenatal, baby and child welfare, nutrition, preschool dental, eye, ear, nose and throat, venereal, skin, chest, posture, and psychopathic clinics. In comparing the work done in 1920 with that of 1925 it has been found that the scope of work has broadened considerably. In 1920 the work had only been under way a very few months; but by 1923 the organization was more or less complete. It carried on as such until June 1, 1925, when a retrenchment of the commission's activities had to be decided upon for financial reasons, so that the budget will be about \$20,000.00 after May 1, 1926.

PROVINCE OF ONTARIO

Hamilton

THE BABIES' DISPENSARY GUILD

This guild was organized in June, 1911, its aims being to reduce infant mortality, to keep the well baby well, and to improve the health of the coming generation by giving prenatal care to expectant mothers. The budget for 1926 is \$14,572.48. The types of work in 1925 included prenatal and infant welfare work, whereas in 1920 only infant welfare work was carried on. During the past five years a part-time medical director has been appointed, and prenatal care has been added.

AUSTRALIA

Sydney

ROYAL SOCIETY FOR THE WELFARE OF MOTHERS AND BABIES

This society was organized in November, 1918. Its aims are: salvage of baby life, provision of proper nursing conditions for mothers, before and after childbirth; coördination of maternity and infant welfare work; establishment of rest hours for mothers; the formation of welfare centers and committees; the care and supervision of children up to school age; the establishment of 2 corps of mothers' aids; the provision of free milk and ice. The revenue for the current fiscal year is £5,540, with an expenditure of £4,884. The work done in 1925 included: treatment of mothers and babies; special training of nurses (already qualified as general, or obstetric, or both) in mothercraft and infant hygiene; free training of Bush nurses; provision of free milk; training of mothers' aids; lectures and demonstrations in country towns and districts; distribution of useful and informative pamphlets and leaflets; newspaper articles on mothercraft and child welfare. Free treatment provided for those who cannot afford to pay.

CHINA

Shanghai

COUNCIL ON HEALTH EDUCATION

This council was organized in 1915 and aims to conserve and promote health in China primarily through the participating organizations. The budget for 1926 is \$37,286.00, the funds coming from voluntary contributions from Chinese and foreign givers, business concerns in China and abroad, mission boards, and from the participating organizations. The types of work done in 1925 include: major emphasis on school health program; preparation of literature, slides, films, textbooks; participation in surveys in schools, summer institutes for training teachers to teach health; the promotion of annual health examinations, and smallpox vaccination. In 1920 we ended a period in which we devoted much attention to popular health campaigns by means of demonstrated health lectures. Within the past five years the work has undergone an evolution from the general to the concrete or a substitution of rifle fire for the blunderbus.

CZECHOSLOVAKIA

Prague

CZECHOSLOVAK RED CROSS

This association was formed in 1919 and aims to educate the people in matters of health; to give first aid in case of catastrophe; to train and educate health workers and children through the Junior Red Cross. The budget for 1926 is 21,597,000 Czech crowns, the funds coming from membership fees, gifts, various Red Cross activities, and so forth. The work done in 1925 included: the organization of 17,000 first aid workers; the establishment of a school for social workers in Slovakia, and the introduction of a nutrition department. Since 1920 relief work required by postwar conditions has been added; health work has been introduced, and the Junior Red Cross has been organized. During the past five years, postwar relief work has been replaced by the regular peace-time activity of the Red Cross, cure by prevention. This includes all children menaced by tuberculosis for whom summer colonies are established.

FRANCE

Paris

ARGONNE ASSOCIATION OF AMERICA

This association was formed in July, 1920, its aims being to provide a home and a family life for the child who has no parents; to secure to him his birthright of health; to educate him and to train him to earn his livelihood; to develop his character that he may become an upright and a useful citizen; and to do these things so well and so economically that others shall follow this example. The budget for 1926 is 600,000 francs, one-half of the funds raised in France through various government organizations, and the balance in America by private subscription. The types of work done in 1925 include: the placing out of children under supervision; clinics; and vocational training.

Community Health Organization

Revised Plans for Communities of 100,000
and 50,000 and a New Plan
for 30,000 Population

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And the coöperation of city and
county health officers

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PREFACE

ONE ENTIRE DAY of the American Health Congress at Atlantic City in May, 1926, was devoted to the discussion of public health organization in cities and rural communities.* The three plans of health organization which had been published in the last few years, namely, "An Ideal Health Department for a City of 100,000 Population,"† "A Proposed Plan of Organization of Community Health Work for a City of 50,000 Population,"‡ and "The Organization and Budget of a Health Department in a City of 20,000 Population,"** were used as the basis and point of departure for this discussion.

Formal papers were presented by health officers and public health administrators from all parts of the country, in order that geographical differences in the administration of health work might be brought out. The details of organization were discussed by those actively engaged in health administration in communities of various sizes. The sessions were in fact experience meetings in which more than a dozen health administrators analyzed their experiences with these plans, pointing out their strength and their weaknesses, branding this point as too idealistic and that as insufficiently stressed.

As might be expected from such a symposium there was considerable duplication in the material presented. It was agreed by the organizations under whose auspices the meeting was planned, that the publication of the papers as presented even if preceded by the plans themselves might lead to a new form of confusion. In order that a usable volume which would represent the sense of the meeting might be published, the American Public Health Association, which was primarily responsible for the session, undertook to use the material presented for the purpose of revising the plans and thereby giving to health workers three concrete and specific statements relative to the organization of health work in rural communities, small cities and large cities.

Professor Hiscock of Yale University was engaged to edit this material. His work was carried on in close coöperation with others inter-

* Program for this day was prepared under the auspices of the following organizations: Conference of State and Provincial Health Authorities of North America, American Child Health Association, National Organization for Public Health Nursing, American Public Health Association.

† Am. J. Pub. Health, 12:891 (Nov.), 1922; Pub. Health Bull., 136, 1923.

‡ A Health Survey of 86 Cities, American Child Health Association, 1925.

** Am. J. Pub. Health, Mar., 1924.

ested in public health development whose judgment could be relied upon to blaze the trail for the future development of health work.

These plans are intended to be used as guides in the development of a local program, a trellis on which to train its growth, in order that in a period of five or ten years there may be a living organization reaching out into all parts of the community, and established upon sound scientific principles. That many communities in each population group are well on the road to the development of plans, which in some instances are more ambitious than these proposed, is a fair indication of their practicability.

SECTION I

BASIS OF PLANS OF ORGANIZATION OF COMMUNITY HEALTH WORK

DEVELOPMENT OF THE PUBLIC HEALTH MOVEMENT

ADMINISTRATIVE health practice has developed rapidly during the past decade, in scope, volume, and effectiveness. This development has not been confined to any one group of health agencies, but has embraced the activities of federal, state and local governments and of voluntary organizations. With extension of activities in public health fields have come improved standards of living, lowered incidence of important communicable diseases, and increased longevity. These are tangible results of the public health campaign which was launched less than a century ago in England, and has steadily progressed with increased knowledge gained through important discoveries by leaders in the medical, sanitary and social sciences.

As the public health program has broadened with the introduction of new lines of service and the emphasis on education in the principles of hygienic living, consideration has naturally been given to the relative values of different health activities. With the somewhat rapid development which has taken place it was perhaps not surprising to find a striking lack of uniformity in practically every activity of local health work.

SURVEYS OF HEALTH DEPARTMENT PRACTICE

The need of authentic information in regard to the practice of municipal health departments of American cities led to the formation in 1920 of the Committee on Municipal Health Department Practice of the American Public Health Association. This committee, it may be recalled, with the coöperation of various agencies and individuals, notably the U. S. Public Health Service and the Metropolitan Life Insurance Company, surveyed 83 of the largest cities of the United States, giving particular attention to the machinery of official health administration. In addition to an analysis of the activities of the various health departments for the year 1920, there was prepared by C.-E. A. Winslow, Dr.P.H., Chairman of the Committee, a broad outline of what might be considered, in the light of the best knowledge existing, a scheme of health service fully adequate in character, in the hope that such a norm

might be of value in judging the efficiency actually achieved in practice. The publication in 1923 of the report of the committee, in *Public Health Bulletin No. 136*, U. S. Public Health Service, marks an important point in the development of public health administration. Here was presented for the first time, for a large number of cities, a detailed account of local health service, together with a plan for an ideal health department for a city of 100,000 population.

In 1925, the American Child Health Association published another valuable report, also dealing with local health practice, based on a survey made by that organization, of health work for the year 1923 in 86 cities of 40,000 to 70,000 population. As a part of this report, there was developed a plan of organization of community health work for a city of 50,000 population which represented, after more than a year of study, the judgment of that organization and of many health experts who assisted.

From time to time studies of health problems in small communities and rural areas have been made, notably by the U. S. Public Health Service and the International Health Board. It has been apparent, however, that public health work in small cities deserves more attention than it has previously received. This problem will doubtless be considered in the near future. Reference may be made here to a plan of organization for a community of 20,000 population, based upon a somewhat limited public health survey of small cities and towns, chiefly in Connecticut, published in 1924.* The scope of activities provided under this plan is, however, more extensive than can be realized at present by the average small community,† except on a district or county basis, and this problem will be discussed in Section IV.

The results of the first survey of health practice in 1920 were sufficiently enlightening to cause the U. S. Public Health Service in 1923 to make a second study of the work of large cities. This survey was conducted in coöperation with the Committee on Municipal Health Department Practice of the American Public Health Association. It was somewhat more elaborate than the first study, and included 100 cities of 70,000 population and over. Through the courtesy of the Surgeon General of the U. S. Public Health Service, the results of this

* The Organization and Budget of a Health Department in a City of 20,000 Population. I. V. Hiscock, *Am. J. Pub. Health*, 14:203 (Mar.), 1924.

† The health program of White Plains, N. Y., supported by 5 different groups in the community, is broad in scope, and called for an expenditure in 1925 of \$2.05, exclusive of hospitalization, amounting to an additional \$1.25. Edwin G. Ramsdell, M.D., Health Officer, White Plains, N. Y., American Health Congress, Atlantic City, May, 1926.

survey have been made available for our use. The detailed report is now ready for distribution.*

DEVELOPMENT OF STANDARDIZATION

The collection and analysis of these data by trained health workers has been a monumental task, but the results are far reaching. On the basis of knowledge thus acquired, standards of health practice of wide significance in the improvement of human welfare are being developed and applied throughout the United States. The desire for careful self analysis and for filling important gaps in local health machinery has been manifested. The three proposed plans of health organization, although subject to criticisms to be expected in pioneer attempts of this character, have proved helpful references or guides for health workers and city administrators.

PRINCIPLES OF PLANS OF HEALTH PRACTICE OUTLINED

The principles underlying the plans may be briefly outlined.† There are certain features of public health work which require collective or official action. For example, the maintenance of a safe public water supply and the assurance of a pure milk supply are problems which are essentially beyond the control of the individual citizen. Certain other problems also require public control measures, although the success of these measures depends upon intelligent individual coöperation. Communicable disease control is an example of this class. There are other phases of public health work which are within the control of the individual but which are properly a function of the local government in that they involve community measures designed for the advancement of the public health and welfare. These relate to the customs and habits of life. The government's participation in these problems is largely educational. The work of the various clinics‡ and the public health nurses

* Pub. Health Bull. No. 164, 1926.

† From "A Plan of Organization of Community Health Work for a City of 50,000 Population," Section IV, A Health Survey of 86 Cities, American Child Health Association, New York, 1925.

‡ In this connection and throughout the plans of health organization which are to follow, it is important to keep in mind the fundamental distinction between two types of clinic or dispensary services. One type is designed primarily for educational purposes (prenatal and infant welfare clinics for example) and the other type is designed to furnish medical and surgical treatment service. The first type, frequently called a health conference, should be very widely distributed throughout the city in order to accomplish its function properly, and it can be thus distributed because it requires no elaborate equipment. For practical purposes dental clinics may also be regarded as belonging to this type. Medical and surgical clinics, on the other hand, require staff organization and equipment which cannot be extensively duplicated, and patients who need actual medical and surgical care can be brought, without serious difficulty, to points where really scientific treatment can be secured.

comes in this category. It is not expected that the local government through the department of health should shoulder all the personal health burdens of the community, nor in our democratic form of government should it force people to be healthy.

While advancement in personal health is indeed an individual matter, behavior that is harmful to the public health, or that results in an additional burden and expense to the public, is certainly a matter of general concern. The public expends large sums of money for hospitalization in various types of institutions and for homes for the indigent. Faulty personal habits of living are partly responsible for increasing the population of these institutions, and the educational work of health departments should be directed towards counteracting such results. The proper balancing of these three lines of activity must be worked out in individual cases on their merits, recognizing, however, that sharp lines can never be drawn between prevention and treatment. It is anticipated, furthermore, that in those matters which are educational, the health program should be designed so far as possible to reach the entire community.

SOURCE OF BASIC DATA USED IN THE PLANS

To utilize to the greatest advantage of health workers all the suggestions which have been made, it has seemed desirable to re-study the details of each plan for the purpose of presenting new or revised programs of community health service for cities of 100,000 population, of 50,000 population, and for small communities utilizing the district or county as the unit. In this revision, the advice of a large number of health organizations and individuals has been sought to supplement the suggestions which were made at the American Health Congress. An effort has likewise been made to include standards which have been shown to be feasible by the information acquired in the recent surveys of the U. S. Public Health Service and the American Child Health Association, and in the use of the new *Appraisal Form for City Health Work* of the Committee on Administrative Practice of the American Public Health Association. In general, the majority of standards suggested are actually realized, on the average, by the upper 25 per cent of the cities surveyed.

SCOPE OF THE PLANS

It must be emphasized that the plans which have been outlined embrace all the public health service of a community. As in the previous plans, it has seemed desirable to assume that all strictly public

health activities will be performed by the municipal health department. It is, of course, assumed that the various municipal departments and agencies of the city government, such as the schools, the courts, the park and recreation departments, the department of public works, the department of charities and the public library, are not neglecting those phases of their work which have a health significance. It is also assumed that the excellent services rendered by voluntary agencies, varying in scope and degree in different cities with local conditions, will be continued to meet existing needs. The achievements of voluntary agencies, particularly in pioneer fields, are generally recognized. That their services are needed to-day as much as heretofore is taken for granted. There nevertheless is a tendency which should be fostered, toward official responsibility for proven public health work. These facts should be clearly borne in mind, in considering the adaptation of these plans to the programs of any local communities.

Where functions described are carried out by voluntary organizations, such as visiting nurse associations, anti-tuberculosis associations, and the like, or by other official agencies, as the board of education, the organization and budget of the health department may be correspondingly reduced.

Furthermore, these plans do not include measures for the collection and disposal of garbage and refuse, or street cleaning, which are recognized as functions of an engineering bureau or department of public works; nor of plumbing inspection or inspection of new building plans, which are likewise usually handled by special plumbing or building departments. Likewise, the administrative control of water supplies, if owned by the city, and of sewerage and sewage disposal, are functions of a department of city government other than the health department, although the health department should be always informed of results obtained and be ready to give advice and supervision of a public health nature. Many problems previously considered as functions of a sanitary division of the health department are recognized as duties of other official agencies, thereby conserving additional funds and resources for more productive public health work.

Specific provision for mental hygiene and industrial hygiene has not been made here, although the growing recognition of their importance is acknowledged. At the present time, however, the administration of these activities by municipal health departments has not become sufficiently standardized to warrant inclusion in these programs. While the adequate care of the sick poor is considered a proper municipal function, no provision has been made in these programs outside of the

public health dispensary services and the provision of public health nursing.

SIMILARITY OF PLANS

Although these three plans were originally prepared quite independently, there will be observed a striking similarity in many details of principle and of organization. Each plan calls for a board of health of approximately five members, preferably without direct administrative powers, appointed or elected to serve for overlapping terms. The plan for a large city indicates that the health officer may, under certain circumstances, be a member of the board of health, but this is not suggested in the other plans. In the plan for a large city it is suggested that the health officer may be appointed by the mayor, although the plan of appointment by the board of health is also commended. The plan for a city of 50,000 population recommends appointment by the board of health, as does the plan for a county. All three plans emphasize the importance of trained personnel, security of tenure of office, adequate funds, adequate laws, and a favorable public opinion.

The plans correspond closely in functional details, although in the programs for the smaller city, and for the county, certain divisions or functions are combined for administrative purposes. All three plans recommend that public health nursing be performed on the generalized basis, under centralized supervision, whether or not bedside nursing is supplied by voluntary agencies. The following table indicates a striking similarity in requirements of personnel and funds for health service proper. It would seem profitable for health administrators to have before them charts of this nature comparing the personnel and budget available with those recommended, for example, by these plans.*

At the present time, the relative expenditures by county or district units and by municipal health departments are not directly comparable because the intensity of service differs, as do many of the individual problems encountered. In a few counties or districts where really adequate health programs have been attempted, however, the general principles of health administration outlined under municipal health service have been found to apply, and the need of approximately equivalent health service in a well-rounded district health program has become recognized.

These plans are prepared as comprehensive plans of community health service with the hope that they may be useful as guides for those seeking to develop adequate, well-balanced programs of health administration.

* Suggested by Henry F. Vaughan, D.P.H., Commissioner of Health, Detroit, Michigan, American Health Congress, Atlantic City, May, 1926.

COMPARATIVE PERSONNEL AND BUDGET SUGGESTED FOR CITIES OF 100,000
POPULATION AND 50,000 POPULATION AND FOR A COUNTY
OF 30,000 POPULATION

Service	Personnel on Basis of 50,000 Population			Cents per Capita		
	100,000	50,000	30,000	100,000	50,000	30,000
Administration and records	3½	3	3½	22.2	21.4	32.7
Communicable dis- ease and labora- tory	6½	6	5*	35.6	20.7	19.7
Child hygiene	10½	7*	8½*	33.0	25.1	22.2
Nursing	28	27	16¾	86.2	89.6	62.3
Inspection	5	4	3½	20.1	15.2	17.3
Total	53½	47	36¾	197.1	172.0	154.2

* Exclusive of the health officer (Part-time service except for laboratories).

It is believed that they contain the elements of the best practice in the country, applicable for one organizing a health department in "a theoretical" city or county in which no organized health work has been undertaken and where there is a reasonable amount of money available. The plans should not be considered as schemes for immediate adoption as a whole, but for gradual adaptation to existing programs after consideration of local problems, possibilities and future policies.

SECTION II

PLAN OF ORGANIZATION OF COMMUNITY HEALTH WORK FOR A CITY OF 100,000 POPULATION

INTRODUCTORY STATEMENT

THE following plan of organization of community health work for a city of 100,000 population is essentially a revision of a plan for an ideal health department for a city of this size originally prepared by C.-E. A. Winslow, Dr.P.H., and H. I. Harris, M.D., and published in *Public Health Bulletin No. 136*, U. S. Public Health Service, July, 1923. The original plan was based largely upon data secured for 83 large cities for the year 1920; and in the newer lines of health work the standards suggested represented the practice of cities which led in these particular lines.

Since the publication of the original plan, considerable progress has been made in public health administration, new standards have been suggested in certain instances, salary scales for public health workers have been increased, and communicable disease incidence has been somewhat lowered in the case of such diseases as diphtheria and typhoid fever, for example. Furthermore, the plan has been widely utilized, and as indicated in the section on communicable disease control, health officials have made helpful suggestions concerning its practicability, and the desirability of revision in the light of modern experience. The present plan is primarily, therefore, a revision of details of personnel, organization, budget, and detailed standards of achievement, with only slight alteration of basic principles previously advanced. As in the original plan and as discussed in detail in the above mentioned section, only the fundamentals of modern municipal health service have been included in this outline.

BOARD OF HEALTH

The authorized force created by a municipality for the preservation of public health is the health department. A board of health or advisory council is considered an essential factor in the administrative plan, to advise the health officer in regard to general policies, to approve the budget prepared by the health officer, and to promulgate a sanitary code

in conformity with state regulations. This board might consist of five unpaid members, preferably appointed by the mayor, from representative professional and lay groups, to serve without pay for overlapping terms. The terms of office for members of a board of this size should be for a period of five years each, with provision for replacement or reappointment of one member annually. The composition of boards of health varies with local conditions, but experience indicates that one member at least should be a physician, while one might be a woman, one a business man, one a lawyer, and one an engineer.

Whether or not the members of the board represent the professional groups suggested, it is fundamental that they be well qualified and interested in public affairs, and meet regularly once a month or oftener. Records of regular and special meetings should be preserved. In a city of 100,000 population it is believed the board should not exercise direct administrative authority. On the contrary, the appointment and direction of subordinates, and the handling of specific administrative problems should be in the hands of the health officer. Whether or not the board of health should include the health officer is a question upon which there exists a difference of opinion; one group believes that the health officer should sit with the board as its executive officer, but should not be a member, while another group, perhaps the larger, believes that the board of health should include the health officer, who should in that case serve as chairman.

ADVISORY COMMITTEE

In addition to the board of health, there might also be organized by the health officer a group of interested, public spirited citizens, independent of the municipal administration, to be known as the advisory committee on public health. Such a committee might be composed of either a few individuals selected by the health officer to be of particular assistance to him, or a number of individuals delegated at the request of the health officer by the various health, social, professional and business organizations. The health division of a council of social agencies or a welfare federation may be a helpful force in this connection. The primary purpose of such a committee should be to give sympathetic consideration to the problems of the health department as they affect the community at large.

SANITARY CODE

Proper health regulations are essential for successful health administration. The preparation of a modern sanitary code is one of the

important functions of a board of health, the members of which should be thoroughly familiar with local conditions and promulgate regulations accordingly. These sanitary rules should be maintained in conformity with modern experience, yet within legal limitations. Adequate means of enforcing the health code require a staff of trained workers, suitably housed and adequately paid. In addition to these important factors, a favorable public opinion and a high degree of coöperation on the part of both official and voluntary agencies in the community are fundamental.

HEADQUARTERS

Proper housing of the health department is sufficiently important to warrant special consideration, if most effective results are to be obtained. This means that the main office should be centrally located and that adequate provision be made for the different bureaus, and chiefs of services. There are certain advantages in being located in the municipal building, near other city departments, such as education, engineering and public works, with whom the health department maintains close contact. Many benefits may also be derived from a central health building, adequate for the different bureaus and special clinic rooms. Additional clinic and consultation service in many cities is provided through health centers in various parts of the city, which are also utilized as district offices of the department of health. This provision brings health services near to the people who need them, and may exercise an important educational influence on the citizens of the local districts.

HEALTH OFFICER

The general administration of the department should be conducted on a full-time basis, by a health officer qualified by education and experience to fill the office efficiently. Opinion is somewhat divided on the question of whether the health officer shall be appointed by the mayor or by the board of health, preference perhaps being given in large cities to the former procedure. Those who urge the latter procedure* feel that the danger of political interference seems less likely with changes in administration. There is a gratifying tendency however, for incoming mayors, where the first mentioned plan exists, to fill the position of health officer only after due consideration of the merits of the candidates and records of past achievement. In a few large cities where the form of government warrants, the health officer is appointed by the director of public welfare. Where possible, appoint-

* Suggested by John L. Rice, M.D., Health Officer, New Haven, Conn., American Health Congress, Atlantic City, May, 1926.

ment should be for a term of not less than 5 years, under adequate civil service rules, properly administered, with tenure of office secure, and provision for removal only for cause after a public hearing.* It is essential that the health officer be a sanitarian especially equipped by training and experience for administrative health work. There are certain advantages to be gained if the health officer be medically trained.

ORGANIZATION OF HEALTH DEPARTMENT

As a general plan of organization, subject to fundamental modification in the individual case, it is suggested that the department of health be divided into the following 8 bureaus with the indicated subdivisions:

- I. Bureau of Administration
 - A. Division of Administration
 - B. Division of Public Health Education
- II. Bureau of Vital Statistics
- III. Bureau of Communicable Disease Control
 - A. Division of Epidemiology
 - B. Division of Tuberculosis
 - C. Division of Venereal Diseases
- IV. Bureau of Child Hygiene
 - A. Division of Infant Hygiene (including maternity, infant, and preschool hygiene)
 - B. Division of School Hygiene
- V. Bureau of Public Health Nursing
- VI. Bureau of Sanitation
- VII. Bureau of Foods
 - A. Division of Milk
 - B. Division of Food and Drugs
- VIII. Bureau of Laboratories

I. Bureau of Administration

A. Division of Administration

The task of general administration of departmental activities in a city of 100,000 population will require much of the time of the health officer who should be assisted by a chief clerk and two stenographers. It is not only desirable that routine activities be supervised, but that the effectiveness of various branches of work be studied in formulating plans for future development. Special consideration must also be given to those problems of the individual citizen which daily arise, and opportunity should be provided for meeting cordially persons who may come to the department for advice and information.

* This clause suggested by Matthias Nicoll, Jr., M.D., Commissioner of Health, State of New York, American Health Congress, Atlantic City, May, 1926.

The clerk should be capable of handling the purely routine office business of the department, leaving the health officer free to determine policies, to maintain community contacts, to keep in close touch with his bureau chiefs, and to supervise field activities.

The health officer of a large city should represent leadership of the highest type of public health administrators. To secure an adequately trained health officer of this type demands a salary of at least \$5,000 a year, rising to \$8,000 with continued and successful service. This salary range is somewhat higher than the average for cities of this size at present, although it corresponds with the salaries paid the type of administrators desired. Such a man cannot be obtained without a salary somewhat comparable with what he would earn in other lines of work requiring equivalent basic training and executive ability. To secure for this position a man of ability and experience is the most important factor in the whole scheme of municipal health organization.

In outlining a plan for an adequate health department, therefore, an average salary of \$6,500 for the health officer has been set down in the budget. With the clerk and stenographers and a reasonable allowance for postage, stationery, subscriptions, travel, and similar items which must of course vary with local conditions, the budget for administration will, therefore, be as follows:

Salaries	
Health Officer	\$6,500
Chief Clerk	2,500
2 Stenographers	2,000
Supplies and Maintenance.....	2,500
<hr/>	
Total.....	\$13,500
<i>Per capita</i>	0.135

B. Division of Public Health Education

Education of the public in the principles of healthy living is a most important function of the health department which should utilize every opportunity to keep the people informed of its activities and of the developments in the public health field. Incidentally, this is one means of establishing a favorable public opinion which is fundamental for success. This work may usually be accomplished most effectively through a special departmental division, although in the smaller cities the activities may well be combined with administration duties.

On account of its intimate connection with department policies, this work should be under the direct supervision of the health officer, and receive a considerable share of his attention. The routine features of

the work may be discharged by a full-time assistant somewhat versed in public health principles but particularly experienced in the technic of popular education. Such a man or woman may obtain the necessary technical material from the health officer and his bureau chiefs, in connection with a well conceived educational program, including:

1. The preparation of regular health articles, news stories, and special-feature stories for the daily press.
2. The organization of a lecture service for reaching women's clubs, church and labor groups, and other civic organizations (using the cinema and the radio as opportunity permits).
3. The preparation of exhibit material and the organization of public health exhibits as occasion offers.
4. The preparation (or collection from other sources) of special circulars on the control of communicable diseases, infant hygiene and the like.
5. The publication of a monthly bulletin which should be designed to keep physicians, nurses, social workers, teachers, and other community leaders in touch with current local public health problems.
6. The preparation and publication of an annual report intended to give to the citizenry and other health administrators a clear idea of the accomplishments of the department, their costs, the statistical results achieved and the needs of future expansion.

For this division of the administration bureau, exclusive of the salary of the health officer, there is suggested a relatively low salary figure with a modest allowance for printing and other incidental expenses.

Salary, Assistant in charge of Health Education.....	\$2,200
Printing and other expenses.....	2,000
<hr/>	
Total.....	\$4,200
<i>Per capita</i>	0.042

II. Bureau of Vital Statistics

1. The function of registration of births, marriages, and deaths should be localized in the health department, as sound conduct of health work is governed by information obtained from the careful analysis of material from these sources. Through intimate contact with these vital data, the health administrator is enabled to visualize his problem more accurately and to chart his course of procedure more intelligently than might otherwise be possible. The value of this work will be tremendously increased when the reporting of illness from important causes becomes practiced with sufficient thoroughness to permit the health administrator to know more accurately the real state of sickness

and health of his community. Recording of births, deaths and sickness by permanent sanitary area units has been instituted with profit in some cities. Expert medical knowledge is of distinct advantage in the analysis of records of this character which must be closely scrutinized and verified to be of value.

The Model Law: The Model Vital Statistics Law has been generally adopted and was in force in 1924 in all except three states. This model law provides for a central bureau of vital statistics in the state health department under the direction of a registrar, who shall be responsible for the collection of birth and death reports. Local registration districts are authorized for each incorporated municipality, though two or more may be combined, if expedient. Local registrars are to be appointed and removed by the state board of health, according to this model act, though sometimes certain local officials, as health officers or town clerks are made ex-officio registrars by state laws. From a public health standpoint, as above indicated, it is most desirable that the local health officer supervise the registration of vital statistics.

The chief provisions of the model law are as follows:

- a. That no burial permit shall be issued until a complete and accurate death certificate has been filed.
- b. That the standard death certificate shall be used.
- c. That the medical certificate shall be signed by the physician in attendance at time of death.
- d. That in case of death occurring without medical attendance, it shall be the duty of the undertaker to notify the local registrar.
- e. That no person in charge of places of interment shall permit interment or other disposition of any body unless accompanied by a burial, removal or transit permit.
- f. That a stillbirth after the fifth month of gestation shall be registered both as a birth and a death, and kept separate from other births and deaths. Midwives may not sign stillbirth certificates.
- g. That births must be registered within ten days on the standard form. A footnote to the law suggests that they may be required to be reported within 48 hours in cities. Physicians, midwives, and in their absence, parents or others in attendance must make these birth reports monthly to the state registrar.

Enforcement of this law, which is endorsed by the U. S. Census Bureau, should lead in practice to the reporting of all deaths and of at least 95 per cent of all births. Birth and death certificates, before being accepted for filing, should be examined and corrected for errors, inconsistencies and omissions. It is good routine practice to check and reconcile deaths with reported cases of important communicable diseases and to check deaths under one year and stillbirths against reported births and stillbirths. Births and deaths should be indexed

alphabetically by name, and records and certificates should be preserved in fireproof vaults.

2. The International Classification of Causes of Death should be followed. An ideal standard of service will call for the tabulation and analysis at weekly intervals of the data obtained from birth and death registration and also from the reports of cases of reportable diseases sent in to the bureau of communicable diseases. These tabulations should bring out such correlations as are involved in the distribution of deaths by age and sex, by age and district, by color and nativity, by cause and district, by cause and age, by cause and sex, by cause and month. For most effective use, these records should be compared monthly with local norms.

3. Standard record forms should be prepared for all bureaus, and, so far as practicable, a uniform procedure adopted for the maintenance and analysis of basic data. Birth and death certificates of preceding years should be arranged by months and bound and filed in accessible form. An annual index should be prepared with names arranged alphabetically. Graphic charts are useful to show death rates from important causes by diseases and years. Funds should be made available for printing statistical data in tabular form and with interpretive comment, in an annual report.

4. In addition to such routine activities the bureau of vital statistics should, like the bureau of laboratories, be a research bureau, constantly, as time permits, carrying on special studies, dealing with the trend of mortality rates, the demographic composition of the population and similar problems of direct importance to administrative health authorities.

The work of this bureau should be conducted, in a city of 100,000 inhabitants, by the bureau chief with one high-grade clerical assistant, capable of making charts. It would be unreasonable to expect a very high salary to be paid for statistical work in a city of this size, but the sum indicated below should be sufficient to attract a qualified man or woman who has taken a Certificate in Public Health, with special work in statistics. The budget suggested is as follows:

Salary	
Chief	\$2,500
Clerk and Draftsman	1,500
Maintenance	500
	<hr/>
Total	\$4,500
<i>Per capita</i>	0.045

III. Bureau of Communicable Disease Control

A. Division of Epidemiology

The bureau of communicable diseases, according to the plan here presented, includes the control of tuberculosis and venereal diseases as well as the epidemic diseases. Separate divisions are provided, however, for the former maladies. Effective control of the acute communicable diseases involves the following activities:

1. Prompt reporting of the ordinary communicable diseases to the health department is essential.* On the average, aside from epidemics of special virulence, less than 10 cases per death from typhoid and paratyphoid, less than 15 cases per death from diphtheria, less than 50 cases per death from scarlet fever, less than 100 cases per death from measles, and less than 25 cases per death from whooping cough, indicate definitely incomplete reporting.

2. Systematic investigation of each reported case should be made by a nurse; and in the more serious diseases and obscure cases such as smallpox, and chickenpox in adults, verification should be made by a medical officer. Consulting diagnostic service for use by physicians has proved in many cities a valuable means of strengthening the contacts between practicing physicians and the health department.

3. Specimens should be taken for laboratory diagnosis or release, or both, according to the disease, in diphtheria, typhoid fever, malaria, epidemic cerebrospinal meningitis, and pneumonia (for typing) as well as for tuberculosis, gonorrhea, and syphilis to be discussed in later sections. Release from isolation of cases of typhoid and diphtheria should be based upon two or more successive negative cultures. Facilities should exist for making virulence tests of positive diphtheria cultures.

4. Isolation should be enforced along reasonable lines, adapted to each disease, and for a suitable length of time, in general as suggested in the *Model Health Code* prepared by the Committee on Model Health Legislation of the American Public Health Association.† Isolation should always include as its most important element, the concurrent disinfection of infectious discharges. Instruction of the family in isolation, concurrent disinfection, and the care of the patient and the protection of the public, should be given by physicians or nurses. Present standards suggest that there should be made by professional personnel an average of approximately 4 visits per case of diphtheria, scarlet

* Standard forms suggested by the Sub-Committee on Record Forms of the Committee on Administrative Practice of the A.P.H.A. should prove useful and lead to uniformity in reporting.

† Am. J. Pub. Health, 11, 2:259 (Mar.), 1921; Pub. Health Rep. No. 51, 1926.

fever, typhoid, poliomyelitis, and cerebrospinal meningitis, and 2 visits per case of measles and whooping cough. If it be assumed that normally, exclusive of epidemics and exclusive of tuberculosis and venereal diseases, the number of communicable disease cases reported will not exceed 2,400 annually, and that an average of 3 nursing visits is made to each case, there would be required about 7,260 nurse hours. The time required for a home visit is estimated from data obtained from the East Harlem Nursing and Health Demonstration in New York City. In connection with this demonstration, a careful analysis has been made of the average time spent in various types of nursing work. The report of this analysis based on 1924 data shows that the length of a visit in the home in cases of morbidity averaged 25 minutes, while 35.5 minutes in addition were spent on the average in the preparation of records, in supervision, in general office work, in travel, in staff meetings, and in other activities. This problem will be discussed in greater detail in the nursing section of this program.

5. Reasonable terminal cleansing should be carried out on the termination of a case, but fumigation should only be used as a routine procedure in connection with certain insect-borne diseases.

6. Hospitalization should be enforced with all cases of communicable diseases which cannot or will not be so cared for at home as to avoid the danger of disseminating infection to others. Furthermore, certain types of cases, as laryngeal diphtheria, needing intubation, can only be safely handled in a hospital. It is considered desirable that a maximum of 50 beds should be available for communicable diseases to care for emergencies, although it is doubtful if more than 20 would be occupied under ordinary conditions. Present standards call for the hospitalization on the average of at least 40 per cent of the cases of typhoid, 25 per cent each of the cases of diphtheria and scarlet fever, and 75 per cent or more of the cases of smallpox. An analysis of the communicable diseases reported in a group of cities of 70,000 to 125,000 population during 1922, 1923, and 1924,* suggests that on the basis of these standards, together with reasonable provisions for other types of cases, the average number of beds occupied would rarely exceed 15 or 20, although it is necessary to provide for expansion to care for peak loads during seasons of highest incidence.

7. Systematic provision should be made for the supervision of contacts and the detection and control of carriers in all important communicable diseases. This, and other phases of the work of communi-

* Assistance in this work was received from the Statistical Bureau of the Metropolitan Life Insurance Company.

cable disease control, should be closely correlated with the routine work of the medical inspector of schools. Child contacts of scarlet fever should be effectively controlled for 7 days, and all known susceptible contacts of smallpox cases should be successfully vaccinated or effectively controlled for 21 days.

8. An ample, free supply of the important sera and vaccines will be needed. One of the most fruitful tasks which the health department can perform will be the conduct of organized and vigorous campaigns for the popularization of smallpox and typhoid vaccination, and diphtheria immunization. A standard of 25 per cent of the preschool population immunized annually against diphtheria is suggested inasmuch as the new crop of susceptibles entering the preschool period for the years 1 to 4 inclusive is roughly one-quarter of the total population of that period. This would require four 2-hour clinics a week, amounting to 416 hours for the year.

9. The course of all communicable diseases should be followed as a routine measure on spot maps and weekly charts, and every case of the more important diseases, such as smallpox, diphtheria, scarlet fever, and typhoid should be intensively studied from an epidemiological standpoint. The essential facts in these case histories should be filed, preferably in a card file with disease incidence correlated with other epidemiological information, such as milk dealer, school, water supply, and contact with other cases.

It is obviously essential that the chief of the bureau of communicable diseases be a physician, and a full-time employe. As chief of this bureau, this medical officer would be nominally the administrative head of the campaign against tuberculosis and venereal diseases, although his chief duties would be concerned with the direction of the division of epidemic diseases. This position requires a man of high qualifications and of considerable public health experience, with a salary ranging from \$3,600 to \$5,000. He might well be given the rank of assistant health officer, and designated to take charge of the department in the absence of the health officer. The bureau of communicable diseases should also include an inspector and a clerk, in addition to nursing service amounting to 7,260 hours for home visits and about 416 hours for immunization clinics. It is believed that the inspector, not the nurse, should affix the quarantine sign and legally establish quarantine, leaving the nurse to give special instructions and suggestions regarding the importance of observance of isolation, quarantine and similar matters.* Since the nursing service of the entire department will be provided for

* Suggested by W. P. Shepard, M.D., Health Officer, Berkeley, Calif., American Health Congress, Atlantic City, May, 1926.

later, along generalized lines, this latter item is not included in this or other special bureau budgets. There has been provided \$2,000 for maintenance for this bureau as a whole (including the provision of sera and vaccines) and \$20,000 for hospitalization expenses. The latter figure is reached on the assumption that an average of 10 beds will be occupied by persons unable to pay the cost of \$40 a bed per week. In the light of declining rates from several of the principal epidemic diseases, and of the cases reported for a 3-year period in cities of this class, this allowance seems sufficiently liberal. Every effort should be made to recover a part of the cost of the hospital treatment by a charge against those able to meet it, but economic considerations should not be allowed to interfere with the hospitalization of all cases which ought to be hospitalized for the public good.

The budget for the bureau, as so far provided, will, therefore, be as follows:

Salary	
Chief	\$4,300
Inspector	1,500
Clerk	1,000
Maintenance	2,000
Hospital	20,000
<hr/>	
Total	\$28,800
<i>Per capita</i>	0.288

B. *Division of Tuberculosis*

The campaign against tuberculosis, for a long period known as the chief of all the communicable diseases, has been waged jointly by official and voluntary agencies, the latter having contributed generously to the movement. The municipal health department is virtually responsible for assuring that machinery to combat tuberculosis in a city be supplied, even though certain details of operation may still be executed by voluntary agencies. Where tuberculosis nursing and tuberculosis dispensary work are well conducted by private or voluntary agencies, it may no doubt be advisable to leave these specific activities to them. While the contributions of voluntary agencies throughout the country continue large, there is an apparent tendency for health departments, city, county and state, to undertake a greater share of the work than was previously the case. In order to secure economy and effectiveness of service, it is essential in a city of this size that a full-time, medical administrative officer, skilled in tuberculosis work, be employed to coördinate and supervise all the activities in the community and to make necessary connections with all the agencies concerned with the problem, including the sanatoria. In the present discussion it has been

assumed, as in all similar cases, that the entire field is to be covered under health department auspices. If certain elements in the program are supplied from other sources, the staff and budget can be correspondingly reduced. The following essentials should be provided in every community of 100,000 population:

1. The following legislation is deemed essential: An effective law for the reporting of cases of tuberculosis and a systematic registration of all such cases; either laws or rules and regulations designed to prohibit promiscuous expectoration; also provision for the control of the incorrigible tuberculous individual. Intensive surveys have shown that there are about 9 active cases of tuberculosis to every annual death in a given community. This high figure is not reached by actual reporting in the average community. Therefore, in considering the present facilities available for reporting of tuberculosis, a reasonable attainment would be the reporting of at least 3 new cases (all forms) per death in any given year period.* Correction should be made for residents dying away from the city and for non-resident deaths and cases, but not for either one of these alone, and suspicious and arrested cases should be considered separately from the active cases on the register.

2. In order to aid in the early detection of cases, an expert consultation service should be available so that the practicing physician may have at his disposal the services of a specially trained expert in this disease. There should be adequate laboratory facilities for diagnostic purposes.

3. It should be the aim of the director of antituberculosis work to see that all cases carried on the register are so cared for as not to be a menace to others; and that each case has the opportunity to secure the nursing and medical care, at home or in an institution, which is necessary for his welfare. It is desirable of course that private physicians specifically undertake these responsibilities for their patients. In a large proportion of cases, however, the organized service of the city must assume this work.

4. In order to make certain that the spread of infection from human sources is controlled, concurrent disinfection of sputum, eating utensils, and the like should be secured as far as possible, particularly by using the educational influence of the physician and nurse; terminal cleansing should be carried out as needed. Special attention should be given to the prevention of tuberculosis of childhood through contact, realizing the extreme danger at this age period of association of infants and young children with persons afflicted with this disease.

* In the preparation of this section, helpful suggestions have been received from the National Tuberculosis Association.

5. Adequate dispensary (clinic) facilities should be provided for the diagnosis and the treatment of ambulant cases. Both day and evening clinics are desirable. If the disease is to be effectively controlled, 3,000 visits per 100 deaths should be made by patients to the clinics, either for diagnosis or treatment, and there should be a ratio of at least 3 visits for each patient registered. (Chronic cases carried on the active file of the clinic but who have not actually been at the clinic during the past year should not be included.) The problem may be estimated somewhat as follows:

If it be assumed that in a city of 100,000 there are 80 deaths from tuberculosis of all forms, the number of active cases may be estimated from paragraph 1 to be 720, using the ratio of 9 cases per death. It is perhaps reasonable to assume that there are for every active case 3 family contacts and one arrested case.* This would mean that there were potentially the number of individuals indicated in the following table who should be under care or supervision, the extent depending upon the type of case and the amount of responsibility assumed by private physicians. In view of the fact that not all of the potential cases will ordinarily be known by the health department, a column has also been added to indicate the minimum situation which would at least be realized under present average conditions.

	ACTUALLY REPORTED	ESTIMATED TO EXIST
Active cases	240	720
Old, arrested or passive cases.....	240	720
Individuals exposed to close contact with active cases	720	2,260
Total	1,200	3,700

From this tabulation, the clinic or dispensary needs may be calculated. If it be assumed that 720 active cases exist, of which 240 new cases are reported to health agencies, it may be reasonable to estimate that 140 individuals would come to clinics while the remaining 100 would be confined to bed or be under the care of private physicians. Perhaps one-half of these 140 new cases would make 3 clinic visits before going to a sanatorium, while the remaining 70 cases would come fairly regularly to clinics. The old, arrested or passive cases (240) might also be expected to make an average of 3 visits to clinics. The detailed clinic attendance might be pictured somewhat as follows:

* From a Proposed Plan for a City of 50,000 Population, American Child Health Association, A Health Survey of 86 Cities, 1925.

310 individuals averaging 3 visits.....	930 visits
70 individuals averaging 9 visits.....	630 visits
720 contacts of 240 cases (one-half visiting clinic twice).....	720 visits
60 individuals (non-tuberculous) examined at clinic (visiting twice).....	120 visits
	<hr/>
Total of 800 individuals making.....	2,400 visits
	<hr/>

Medical service at these clinics should be on a salary basis if dependence is to be placed upon it, and detailed records should be kept along lines laid down by the Association of Out-Patient Clinics of New York City.

These 2,400 visits would call for approximately 50 examinations a week, and would necessitate, for most effective work, five 2-hour clinics or dispensary sessions a week, one or more of which should be in the evening. If one physician is in attendance at each clinic, this will require 520 physician-clinic-hours of service.

6. The field nursing service in behalf of tuberculous patients or persons under supervision because of previous or present contact with tuberculous cases ranks as equal in importance with the dispensary system. The public health nurse has become recognized as perhaps the most important field agent in the tuberculosis program, and her duties include the constant search for new cases among contacts and elsewhere, the supervision of home treatment in the substantial proportion of instances where home care is desirable, and the follow-up of recovered cases discharged from dispensaries and sanatoria. Good follow-up will require that 20 per cent of the cases visited will be post-sanatorium cases, and that there should be a minimum of 5,000 field nursing visits per 100 deaths.

If the previous estimates of the problem be applied in this connection, the distribution of the field nursing visits may be somewhat as follows:

240 active cases receiving 10 visits.....	2,400
240 arrested or post-sanatorium cases receiving 4 visits.....	960
240 contact families receiving 2 visits.....	480
Miscellaneous visits*	160
	<hr/>
Total	4,000

* As outlined in the Plan of the American Child Health Association for 50,000 population, these miscellaneous visits include visits to suspected cases, investigations of deaths, employment calls, coöperative visits, welfare calls, visits to tuberculosis hospitals, visits to doctors' offices, collection of sputum specimens and the like.

In cities where reporting of early cases has reached a higher ratio than 3 cases per annual death, the number of visits to active cases and to contact cases would be proportionally increased. The follow-up of post-sanatorium cases would likewise involve more nursing visits because as cases are discovered in their incipency there is usually increased likelihood of early return to the community, thereby increasing the need for post-sanatorium care. The 4,000 nurses' visits a year represent 4,033 nurse hours for the year devoted specifically to tuberculosis, in addition to five 2-hour clinic sessions a week, or 520 hours. Obviously the nursing personnel must be increased to be adequate for a community in which the number of tuberculosis cases actually known approaches the number 720 estimated to exist, for the above calculations have been based on what might be termed a moderate demand.

7. Sanatorium and hospital facilities should be provided. From an ideal standpoint these institutions should be municipally owned and operated, although practically such a standard would be difficult of attainment in many cities, and the following requirements will apply whether the hospital be owned by state, county, municipality, or by voluntary agencies. There should be beds for adults, and children, the sanatorium taking the hopeful cases and the general hospital making provision for the hopeless or terminal cases. The minimum bed requirements for any community are one bed for each annual death, or 25,000 patient days treatment for each 100 deaths. At least 25 per cent of the total admissions should be of the incipient type of case.

An institution of 60-100 beds (the usual number needed in a city of 100,000) requires a medical superintendent and from one to two assistants. Ideally, the medical superintendent should be in charge of all clinical work in the sanatorium, hospital and dispensary. In this way there will be a very close contact with the new case before admittance to the institution and, what is of equal importance, adequate follow-up on discharge from the sanatorium.

Careful records of hospitalization of cases should be maintained to show for each of the different institutions to which patients have been sent (a) the number of beds available for city cases (children and adults), (b) the total number of admissions, (c) the classification of cases (incipient, moderately advanced and far advanced), (d) the total patient days, (e) the average length of stay, and (f) the average cost per patient per day. Incipient cases are defined to mean those which upon admission to the hospital have not passed the incipient or early stage of the disease. The item patient days is defined to mean the total number of patient days of hospital care for residents and applies

whether the hospital be owned by the state, county, or municipality, and to private hospital care regardless of whether the care is given at public or private expense.

8. Encouragement should be given by the health department and other agencies to the development of definite provision for supervising and finding suitable employment and living conditions for arrested cases. This is one of the sociologic aspects of the tuberculosis problem of major public health importance.

9. Considerable attention should be focused, in conjunction with the child hygiene division, on the development of open-air schools, summer camps, and other preventoria for the care of contacts and "pre-tuberculous" children. An adequate midday meal and rest period should naturally form a part of these facilities. The importance of securing for these lunches safe milk through regulations for tuberculin testing of dairy cows, proper pasteurization, and other procedures will be discussed in a later section on milk control. Ten or more children per 1,000 of the grade school population (public or private) should be eligible for this form of treatment. A preventorium may be defined as a 24 hour day, 12 months of the year, open-air school. It is not for active cases of tuberculosis, but rather for the contact and the definitely undernourished, and for those children who do not respond to the limited effort made in the open-air schools, and summer camps, to increase their resistance to such a point that they can again assume their place in society with safety.

The stimulation and coördination of the entire campaign outlined above should be placed under a separate division in the hands of a single director who may, however, for compactness of organization, be attached to the bureau of communicable diseases. He should be either the superintendent of the sanatorium, as outlined under 7, or an expert in tuberculosis, sufficiently competent to serve the clinics and to act as consultant for local physicians. A part-time clinical assistant should also be provided, to relieve him of some of the burden of clinic duties, and an effort should be made to secure the best available diagnostician for this service.* Nurses with social service experience are needed in addition to the part time of a social worker who might also serve the venereal disease clinic in a similar capacity. This would make the organization and budget for tuberculosis work (exclusive of nursing) as follows:

* Emphasized by George C. Ruhland, M.D., American Health Congress, Atlantic City, May, 1926.

Salaries

Director of Division.....	\$4,000
Medical Assistant (part-time).....	1,000
Social Worker (half-time)	900
Clerk (half-time)	500
Maintenance	1,500
<hr/>	
Total	\$7,900
Per capita	0.079

C. Division of Venereal Diseases

An adequate program for the control of the venereal diseases should include educational measures, recreational measures, protective social measures, law enforcement measures, and medical measures. In the conduct of the campaign the municipal health department should endeavor to secure close coöperation with the state department of health and the local medical society. An adequate health department program for combating venereal diseases involves the following elements:

1. There should be a law requiring notification to the local health department of all cases of venereal diseases. While several state laws require the reporting of cases by name, other laws call for reporting by number only, so long as the patients are regular in their treatment. In view of the special problems presented by these diseases it is common for the health officer to permit physicians who will act as his representatives to report their cases by number and withhold names and addresses, so long as patients remain under treatment and observe all precautions to prevent the exposure of others to infection. Reasonably coöperative reporting shows at least 1,500 new cases per year in a city of this size, while 1,000 old cases might still be under treatment.

2. Ample laboratory diagnostic facilities should be available for supplementing both clinic and private physicians' examinations for the early discovery of infected persons. The free laboratory diagnosis facilities of the municipal health department should be able to meet all requests of physicians, clinics, and hospitals not provided for by state or private laboratories.

3. There should be legislative provision for the examination of presumably infected persons; and for the compulsory segregation of infected persons whose conduct constitutes a menace to the public health. This necessitates a suitable place of detention—a problem needing greater consideration than it has previously received.

4. The early detection of venereal diseases, followed by efficient intensive treatment is vitally important for the welfare of the patient

and for the protection of the public through terminating or shortening the infectious period of the case. Health departments, should, therefore, stimulate and in so far as practicable actually operate clinics for venereal diseases under such conditions of free and pay service as local circumstances warrant. Day and evening clinics are necessary, with consideration given to their proper location from the standpoint of convenience and effectiveness of treatment. Provision of a male nurse for the sessions when men are treated is desirable. Considerable care must be given to insure that patients, so far as possible, by means of personal talks with the physicians, are brought to understand the seriousness of these diseases, and the importance of proper intensive treatment over a long period of time.

Serious attention must be given to the follow-up of cases, to the study of family problems, and to the prevention of recurrent infections. For this purpose adequate follow-up and study by a social worker is necessary. Adequate provision should be made for the return to physicians or clinics of cases after having stopped treatment; about 60 per cent of the discontinued cases may be expected to be returned by an effective follow-up system. The success of a clinic for the diagnosis, treatment and control of infected persons depends upon the provision of proper equipment, scientifically trained personnel consisting of physicians, nurses, and social workers and an informed public.

Besides the public clinic the medical profession must in its turn bear a large share of the burden of controlling and eradicating venereal diseases. There may be expected approximately 800 registrants at the clinic per 100,000 population, and under an effective system these should average at least 10 visits per new patient registered. Registration is defined to mean the number of persons who were in active attendance at the clinic for either diagnosis or treatment. The term "clinic visits" is considered the number of visits made for either diagnosis or treatment.

5. As in other types of communicable diseases, it is desirable that adequate field nursing service be provided to instruct patients and members of their families in the home as conditions indicate the need, to secure regular clinic attendance of patients, and to encourage examination of members of their families as the cases warrant. If one-half of the cases registered receive an average of 3 visits annually there would be required 1,200 visits or 1,210 nurse hours for the year.

6. Hospital facilities for a limited number of bed cases of venereal diseases are essential, but these may be provided in general hospitals.

Local circumstances affect the number of beds needed, but not less than 10 beds per 100,000 population should be provided.

7. An organized educational program should be adopted which will include as an integral part of the activities of the division the following:*

a. Addresses to clubs, faculty groups, Y.M.C.A., Y.W.C.A., Boy Scouts, Girl Scouts, high schools and other groups for the purpose of character building and to present the proper aspect of sex social questions.

b. Instruction of the public regarding health and hygiene; the prevalence of venereal diseases, method of spread, economic and social loss; the damage and effects upon posterity of the venereal diseases and the serious consequences to the individual. Such lectures can be illustrated with moving pictures, lantern slides, and other visual aids.

c. Exhibitions of various kinds by the use of display cards and posters.

d. Distribution of pamphlets.

e. Circular letters sent periodically to physicians, dentists, nurses and interested laymen.

The successful execution of this program which has been outlined will, of course, depend in a large degree upon public support and coöperation between the health department and other official departments, such as the department of education, and the police department, as well as with important voluntary agencies. Certain other measures are essential in connection with the plan. There should be regulation of amusements, entertainment and recreational facilities through playgrounds, clubs, theaters, and literary, musical and athletic organizations and stimulation of group activities. Protective social measures include the safeguarding and bettering of home surroundings and influences by measures tending to increase home comforts and attractions and better housing and living conditions; and the proper care of the feeble-minded. Besides legislation dealing with the diagnosis, treatment and control of infected persons, there must be provision for the elimination of all environmental conditions favoring the dissemination of the venereal diseases by suppression of prostitution, prevention of solicitation and enforcement of laws effective equally against both sexes.

Among other special measures bearing upon the general problem of venereal diseases, there should be means for the control of ophthalmia neonatorum to include prompt reporting and immediate and adequate treatment (to be further discussed under infant hygiene). Recognizing also the importance of the congenital syphilis problem, the facilities of the division of venereal diseases should be readily available for the

* From the report of a survey by the American Social Hygiene Association of the facilities provided in Syracuse, N. Y., for the prevention and treatment of gonorrhea and syphilis, 1923.

prenatal clinics, at least for the examination of routine Wassermanns from each patient.

For the carrying out of the program outlined above, exclusive of nursing service, there should be attached to the bureau of communicable diseases a full-time director of the venereal disease division, with a part-time assistant, a part-time social worker and a part-time clerk (the last two devoting the rest of their time to tuberculosis or other work). Leaving the nursing service to be considered later, this gives the following budget:

Salaries	
Director of the Division (and of clinics)	\$4,000
Medical Assistant (part-time)	1,000
Social Worker (half-time)	900
Clerk (half-time)	500
Maintenance	2,500
<hr/>	
Total	\$8,900
<i>Per capita</i>	0.089

IV. Bureau of Child Hygiene

The modern conception of an adequate child hygiene program includes provision for prenatal and obstetrical care, infant welfare, preschool and school hygiene. Activities in this field are developing rapidly and have already achieved remarkable results, but in many localities should be extended along sound administrative lines. By the full use of clinics, hospitalization, nursing and other available measures, we may hope to lessen stillbirths, to increase the vitality of children born alive, to safeguard them through the most dangerous period of their lives, to correct their disabling defects, and to pass a larger proportion of them into the schools in good condition, and to graduate them from the schools better able physically to carry on the business of living. If this hope is to be consummated, it will be by our striving for the attainment of such high ideals as are embodied in this plan for an adequate health department and in particular by the strengthening of the organizations for the conservation of the health of children.*

A. Division of Infant Hygiene (including maternity, infant and pre-school child hygiene)

Maternity Hygiene: The protection of the health of mothers and young children is perhaps the most important of all the functions of the

* From discussion of plan, by W. Brownley Foster, M.D., Director of Public Welfare, Richmond, Va., American Health Congress, Atlantic City, May, 1926.

health department. In a city of 100,000 inhabitants, it should constitute a division of the bureau of child hygiene.

1. Adequate prenatal care calls for a knowledge of prospective mothers as early in pregnancy as possible. Prenatal care has been defined * as that part of maternal care which has as its object the complete supervision of the pregnant woman in order to preserve the happiness, health, and life of the mother and child. "Therefore, all pregnant women should be under medical supervision during their entire pregnancy, for it is only by careful routine prenatal care that pregnancy and labor can be made safer." An organized system of prenatal clinics is necessary, where prospective mothers who cannot otherwise obtain care during this important period may receive medical examinations and directions regarding care for themselves and for their future babies as well as postpartum examinations.

Standards of prenatal care suggested by the Children's Bureau indicate that ideally a patient should be examined by a physician at least once a month during the first six months, then every two weeks or oftener as indicated, preferably every week in the last four weeks. A properly qualified nurse working in conjunction with a physician may assist in the observation of the patient. At each visit to the physician the patient's general condition must be investigated, blood pressure taken and recorded, urinalysis done, pulse and temperature recorded, and the weight of the patient taken if possible. It is believed that a practical standard in health department clinics for the present should be the registration at least before the fifth month, of expectant mothers approximately equal in number to 20 per cent of the number of births. This ideal was more than realized in 5 large cities in 1923. A report may well be sent one month before delivery to the physician who is to deliver the patient.

Efforts to secure early registration and attendance are made effective by the canvassing of districts by nurses, by contact with expectant mothers through generalized nursing services, by reference of cases to the clinic by physicians, social agencies, or midwives, and by recommendations of other mothers. On the assumption that 2,400 births will occur annually in a city of 100,000 population and assuming that 20 per cent of the pregnant women will be registered at the clinic, there would be 480 registrants. If these visit the clinic monthly during the last five months of pregnancy, and make 1 postnatal visit, the total of 6 visits for the 480 patients would amount to 2,880 visits. If it is assumed that about 10 cases may be handled at each clinic session, there

* Standards of prenatal care, U. S. Department of Labor, Children's Bureau Publication No. 153, 1925.

will be needed at least five weekly 2-hour clinics to meet this situation. Special dental and nutrition problems should receive due consideration, with reference of cases when necessary to appropriate clinics or local specialists.

2. Adequate provision is necessary for obstetrical care through hospitalization and outpatient obstetrical nursing service. It is believed that from 25 to 40 per cent or more of all deliveries can profitably be handled in hospitals. There is needed coördination of activities and effective supervision for greatest efficiency and protection of mothers in childbearing.

3. Provision should be made for the licensing and supervision of midwives who still deliver a fairly large percentage of babies in most cities,* although their activities have decreased somewhat in recent years.

4. Provisions should be made for free distribution and routine administration of silver nitrate for the protection of the eyes of the new-born infant. In 1923, 81 of the 100 cities of 70,000 population and over required this procedure, while 84 cities required notification of cases of ophthalmia neonatorum.

Infant Hygiene:

1. Efforts should be made through regulations and education to secure the registration of all births within 48 hours. Continued progress has been made in securing early reporting of births, and in 1923, 77 of the 100 cities of 70,000 population and over surveyed were in the birth registration area. City health departments have attempted in many ways to stimulate prompt reporting of births, by educating the people as to the many values of a birth certificate—for school entrance, for foreign travel, and for business purposes—as well as by issuing, in a few cities, particularly attractive certificates which parents are eager to secure. In several cities, certificates of birth registration are routinely delivered to parents by nurses.

2. A system of infant welfare stations is essential for the medical examination and hygienic supervision of infants and young children not under care by a private physician. General rules for physicians conducting conferences suggested by the Children's Bureau of the U. S. Department of Labor† state that mothers should be urged to bring infants under 1 year of age to the child health center (infant welfare station) every week; they should bring infants between 1 and 2 years at

* In 1923, midwives attended over 20 per cent of the births in 24 of the 58 cities of 70,000 population and over furnishing data, while in the remaining 34 cities the proportions varied from about 1 per cent to 20 per cent.

† U. S. Department of Labor, Children's Bureau Publication No. 154, 1926.

least every two weeks, and preschool children every month. Normal infants under 1 year should be weighed by the nurse every week, but if they gain weight steadily, they need be seen by the physician only every four weeks. An infant who does not gain regularly each week, according to these standards, should be seen by a physician as well as weighed, at each conference. Also during the period when formulas are being changed and during the weaning period it may be necessary for the infant to be seen more often. It is emphasized that regularity in children's attendance at the center depends on the quality of medical advice offered, the regularity and promptness of the physician, and the interest of both the physician and the nurse in each individual child. "The physician will find that he can plan the conference best and do the best work under an appointment system."

These medical conferences (or clinics so-called) should be operated by salaried physicians. Present standards of health department practice are considerably lower than the ideals suggested above by the Children's Bureau, and call for at least 2,500 visits per 1,000 live births. This standard is based on actual accomplishment in the upper 25 per cent of the cities of 70,000 population and over in 1923. If it be assumed that 2,400 live births occur during the year, it may be calculated on the above basis that 6,000 visits should be made to clinics by infants under 1 year of age. An average clinic or conference attendance of 25 infants, 10 of whom might be seen by the doctor, would necessitate 240 sessions of 2 hours each, or about five conference periods a week. Considerable assistance in connection with these conferences might be rendered by an organized volunteer service with trained helpers.

3. Conference (clinics) and home supervision (at less frequent intervals) of children between 1 and 5 years should be provided, the objective being to bring all children up to school age with normal growth and nutrition for their age and with all remediable defects corrected, including errors of posture and oral defects. All children should be kept on the records until they enter school and come under the care of the school physicians. Usually the agency best equipped to provide the proper care of the child is the well organized infant welfare department, which is best acquainted with the babies and has their records on file, although the essential point is that adequate care be given. According to present standards, there should be at least 600 visits to conferences per 100,000 total population.* This would require one 2-hour clinic each week,

* The preschool population, ages 1-5 years, may be estimated as 10.5 per cent of the total population or may be obtained from Vol. 11, 14th Census, Age Distribution, and adjusted on this basis. Visits of preschool children in this connection refer to conferences or clinics at which a physician is in attendance for physical examinations or consultations, but do not include visits to vaccination clinics where only smallpox vaccinations are performed.

except in cities where both preschool children and infants are received in the same clinics at the same time.

4. The necessary nursing service should be provided for assistance at the clinics and for extensive and systematic home visitation of expectant mothers, infants, and preschool children. Nursing service in connection with the prenatal conferences would require only a small fraction of the nurse's time. If it is assumed that 25 per cent of the pregnant women receive home visits averaging 6 in number, there would be required 3,600 visits to 600 patients. On the basis of data supplied by the East Harlem Nursing and Health Demonstration previously mentioned, it may be assumed that the time required for an antepartum visit averages around 60.5 minutes. From this it may be calculated that approximately 3,630 hours would be spent in field nursing of prenatal cases.

One means of improving obstetrical care for a certain proportion of cases is through provision of obstetrical nursing services for the deliveries which do not occur in hospitals, are not attended by midwives, or are not served by private nurses. The amount of service needed will vary considerably with the locality, depending upon these conditions which have been mentioned above. It is possible, too, that the nurses (2 under ordinary circumstances) employed in this work might also assist in the supervision of midwives.

Immediately following this care at time of delivery, should be adequate postnatal supervision, in the form of home nursing and of postpartum examination service. The Maternity Center Association of New York advocates that each case should receive at least 5 daily visits and approximately 5 visits within the following 6 weeks. If this standard were only partially met, as 6 visits per case, this would mean a total of 3,600 visits to the 600 cases under supervision, which would represent (on the basis of 81.5 minutes per visit) about 4,890 hours to be spent in visits to postpartum and new-born cases.

One of the important phases of infant hygiene work is the home nursing care given infants and the hygienic instruction given mothers. The purposes of these visits may be briefly outlined as follows: to teach the value and importance of breast milk to the future development of the child; to urge the mother to take her well baby regularly to her own physician if possible (if not, to a health conference), for examination and advice in feeding; to insure that the advice given by a physician or in a health conference is understood and may be carried out under home conditions. A certain number of babies, for one reason or another, will not come to conference but need special attention which may be given

by the nurse in her home visits. Present standards indicate that at least 4,000 visits per 1,000 live births should be made in behalf of infants under 1 year of age. On the assumption that in a city of 100,000 population there will be 2,400 live births, this nursing service (9,600 visits) would consume approximately 8,240 nurse hours as a minimum (on the basis of 51.5 minutes per visit). Although a few cities have surpassed this figure, the nursing estimates of the present plan will be based upon this reasonable standard of attainment. A more complete service, closely approximated in a few instances, would be based on the assumption that all mothers of new-born infants are visited once for delivery of the birth certificate and for giving such suggestions as seem indicated, as the importance of returning to physician for postpartum examination, the value of breast feeding, and the value of regular medical supervision. This would require 2,400 visits. If one-half of the infants under 1 year of age received, in addition, 10 visits a year, a total of 14,400 visits would be required. To make these visits and to do the necessary office work, etc., in connection with the visit, would consume 12,360 nurse hours.

The above estimates do not include the nurses' visits made in behalf of children of ages 1 to 5, inclusive. It has been suggested that at least 225 visits per 1,000 preschool population should be made by nurses to the homes of children of these age groups. In a city of this size, with a preschool population of approximately 10,500 (ages 1-5), there should be made on this basis 2,362 visits, which would consume 1,870 nurse hours (47.5 minutes per visit) for the year.

5. In addition to a well organized system of health conferences under medical supervision and supplemented by an excellent visiting nurse service, there is needed a general educational campaign in regard to the essentials of maternity and infant hygiene, including the organization of little mothers' leagues.

In the plan of organization here proposed, the care of the health of mothers and infants is combined with the supervision of the health of school children in a bureau of child hygiene, since the objective in both cases is the same, the medical examination and hygienic instruction of supposedly well persons, as contrasted with the work of the bureau of communicable diseases, which deals primarily with the sick. One-half of the salary of the bureau chief must, therefore, be charged to maternity and infant hygiene. In addition, there is allowed a sum for the conduct of the medical work of the prenatal and infant welfare conferences, which it may often be best to devote to the employment of part-time physicians who are specialists in infant and maternal care.

In this connection it may be appropriate to refer to the Boston plan of arrangement with grade A medical schools to furnish the medical personnel which functions at the baby and preschool age weekly conferences. The medical personnel is supervised by professors of pediatrics and the city of Boston pays each medical school for the services rendered. This assures a high type of pediatric service free from any interference of political preference. The medical schools in turn avail themselves of the facilities presented by these conferences as a training opportunity for medical students.

Excluding the nursing service (which is, of course, the largest item, but which will be considered later), the budget will be as follows:

Salaries	
Chief of Bureau (half-time).....	\$2,000
Clinical Medical Service.....	5,000
Clerical Assistance	2,000
Maintenance	1,500
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Total	\$10,500
<i>Per capita</i>	0.105

B. Division of School Hygiene

School health supervision has become recognized as an important part of the school and public health program. There are fundamental reasons why a city or state should assume the responsibility for the conservation of the health of the children in its public schools. When a community makes education compulsory, it must assume the responsibility for providing a healthful environment for the children. It is important to educate the child in the principles of healthful living so that he may himself have sound health and thus safeguard the community in the future. Furthermore, it is essential to find out and correct physical and mental defects in the child before they affect his ability to learn and interfere with his school career. From the standpoint of economy, education, and hygiene, it is believed that every effort should be exercised to create health conditions which give every child a fair chance and enable him to get the most out of the years he must spend at school.

This plan contemplates a special division in the health department for the health supervision of school children, but it is clearly recognized that there are at the same time many reasons for alignment with the department of education. Since the work is concerned with the school child, the educator contends, and with much reason, that it is in his province; but since the work consists in health promotion, the health officer claims

the task is his. There is considerable value to school physicians and school nurses in membership in a strong professional organization devoted primarily to health conservation. It is also of importance to coördinate, so far as possible, the machinery which safeguards the health of the individual throughout life. Assurance that the work of school health supervision shall be done effectively is the primary factor to be considered in this connection, for it is essential that an adequate school health program be in force for the benefit of all the children of the public, parochial and private schools.

The principal elements in a complete system of school supervision are as follows:

1. Children suspected of having some communicable disease or physical handicap should be promptly referred to nurses for emergency inspection.

2. Physical examinations, sufficiently complete to include heart, lungs, and posture, should be made by physicians assisted by nurses. One examination should be made at entrance and at least one thereafter (preferably two if medical personnel is adequate), with children's outer clothing removed to the waist. Parents should be urged to be present in order to enlist their interest in and understanding of the findings. The length of time devoted to each individual is one indication of the thoroughness of the examination. Highest ratings on the appraisal form are awarded if not more than 6 children per hour are examined, under ordinary conditions. Preliminary inspection of vision and hearing, and measurement of height and weight may be conducted by teacher or nurse, with reference of children having suspected defects to physicians. It is obviously important that teachers and nurses should have first-hand knowledge of the condition of the pupils, and this procedure would also relieve the physician by delegation of such routine examinations. Complete records of all emergency and routine examinations, with defects carefully classified, together with disease history, should be kept on a card maintained continuously for the entire school life of each child.

3. The ultimate purpose of the medical examination of school children is the well-being of the child which will be promoted by the correction or alleviation of defects thus revealed, hence careful follow-up work by nurses should be done in the home to insure the correction of physical defects and the formation of correct health habits. Present standards call for at least 1 nurse to 2,500 school children, thereby providing for about 400 visits per 1,000 grade school population each year. In a city of 100,000 population, this would call for 6,400 home visits, assuming that there are 16,000 grade school children. To make these

visits would consume 4,827 nurse hours (45.5 minutes per visit), or about two-fifths of the nurses' time, while the remainder would be spent in schools and clinics. Records of defects corrected either by private physicians or dentists or in clinics should be secured and entered as promptly as possible on the individual pupil's card which should be combined with his scholastic record.

4. School clinics including dental, mental, nutrition, and posture, are necessary for the discovery and correction of defects which would otherwise not be remedied, and for such other supervision as may be indicated. Special classes for handicapped children are important features of an adequate school health program.

Consideration should be given to the proper arrangement of the daily program to provide for a suitable alternation of study, rest and recreation, and for the coordination of health promotion activities with other features of school work. Systematic physical education, under a qualified physical director, and health training and instruction should be developed in a manner to interest the pupil and to maintain a proper balance between sound basic instruction and the stimulation of habit formation.

Efforts should obviously be made to secure economy of service and simplicity of organization, and the various activities of the health department must be closely correlated with those of the department of education. The effectiveness of the daily emergency inspection for the detection of suspicious cases of communicable disease and physical defects rests to a very large extent upon the teacher and her knowledge of obvious signs of disease conditions. A carefully developed plan is needed to secure the vaccination of children against smallpox. In some cities it is required that all children be vaccinated before admission to school. Certain other lines of work, such as the conduct of mothers' leagues, may best be performed by nurses who supplement the instruction of teachers in their work in health education. For these and other reasons it will be desirable to organize a joint advisory committee, representing both the department of education and the department of health, to make recommendations in regard to all the general problems affecting the health of school children. The school nurse should be made responsible not only for the first sifting of the daily emergency inspection, but also for that part of the routine regular physical examinations which does not require expert medical knowledge, such as giving the ordinary tests for hearing and vision, thus freeing the time of the school physician for careful medical examinations and for the service of school clinics. It is a wasteful procedure, on the other hand, to use the time

of the nurse in treatments for pediculosis, which should be given in the home, or, if necessary, by a special type of assistant to the nurse.

In order to round out the various activities designed to protect the health of children, a word must be said of the importance of safeguarding children in industry. It is essential that all children applying for working papers must be able to pass a medical examination and those who are disqualified must be prevented from overtaxing their strength. The examination must be based upon a definite understanding of what constitutes normal development, and sound health, and upon uniform standards which the physician should use in rejecting or approving applicants. Children in continuation schools likewise need adequate supervision. It is highly desirable that periodic examinations of working children be given, so that they may be kept from engaging in those tasks which stunt their growth and retard their physical development. Children rejected because they are found physically unfit should be actively followed up and encouraged to have their defects corrected. A study of carefully kept records should provide invaluable information about the effects of child labor upon the growth of the body and lay the foundation for a scientific knowledge of what measures are desirable and essential to conserve the health of the working population.

The work of school health supervision, including high schools and the control of working paper procedure, according to the plan here outlined, should be placed under the chief of the bureau of child hygiene, who should devote half his time to this work. He should be assisted in a city of 100,000 population * by 5 part-time physicians, or 2 full-time physicians, who would make the medical examinations and conduct school clinics.

Nursing service should be provided to assist in the school examinations, immunization and special clinics, the follow-up work in the homes and the conduct of little mothers' leagues. This would require a total of about 12,066 hours. In most cities the school nurses specialize in work for school children, but it is believed that the advantages of generalized district service hold good here as in other fields of public health nursing. With a ratio of one generalized district nurse to 2,000 or 2,500 population, each nurse would have an average of 350 to 400 school children under her charge, so that her district work need not be seriously hampered. While there are difficulties presented by the lack of coincidence between residence districts and grades, or even schools, the ex-

* With the inclusion of private, parochial, and public school children, of both grade and high schools, the total school population may be estimated as about 20,000 according to Haven Emerson, M.D., Committee on Administrative Practice, A.P.H.A.

perience of a number of cities shows that such difficulties may be overcome, with substantial gains in efficiency over the specialized plan.

For the care of the teeth of the school children, at least 2 dentists and 4 dental hygienists should be provided. It is considered sound policy in this work to secure a sufficient corps of qualified dentists for the basic work and add dental hygienists to their staff as local conditions indicate the need.

The budget for supervision of the health of school children (exclusive of nursing service) would, therefore, be about as follows:

Salaries	
Chief (half-time).....	\$2,000
5 Medical Inspectors (part-time).....	7,500
2 Dentists	5,400
4 Dental Hygienists	4,600
Clerk	1,000
Maintenance	2,000
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Total	\$22,500
<i>Per capita</i>	0.225

V. Bureau of Public Health Nursing

The public health campaign of the present day is becoming more and more clearly an educational movement, dominated by the motive of improving the hygienic conduct of the individual life with the aid of preventive advisory medical service. In teaching the individual the principles of healthful living, and in bringing the individual into timely contact with the medical resources of the community, the public health nurse has proved herself the most useful agent at our disposal; and the program of modern public health work in a given community may be measured very accurately by the extent to which public health nursing service has been developed.

The public health nurse is an essential agent for the performance of the following fundamental functions:

1. The home visitation of cases of acute communicable disease for the instruction of attendants in the technic of isolation and concurrent disinfection, for the taking of cultures and preliminary examination of contacts, and for the dissemination of knowledge in regard to the value of vaccine and serum therapy.

2. The assistance of physicians at tuberculosis clinics; and home visitation for bringing contacts and suspicious cases to the clinics, for instruction of patients in home care and for the following up of arrested cases.

3. The assistance of physicians at venereal disease clinics; and home visitation in special cases where such visitation may be advisable.

4. The assistance of physicians at prenatal clinics, and infant welfare clinics; and home visitation for the instruction of mothers and expectant mothers in the hygiene of maternity and infancy.

5. The assistance of physicians at preschool clinics in the examination of children of this age period; and home visitation to secure needed treatments and to instruct mothers in the hygiene of childhood and the importance of proper habit formation.

6. The assistance of school physicians in the examination and supervision of school children; and home visitation to secure needed treatments and to instruct mothers and children in the hygiene of childhood.

For fulfilling these functions under normal conditions, it has been indicated that nursing service approximately as shown by the following table should be provided in a city of 100,000 inhabitants.

A staff of 25 nurses would thus seem adequate for the discharge of what may be called the strictly preventive functions in the public health nursing field.

It has been customary to regard the length of time required for an average nursing visit and the duties connected therewith as 1 hour. In this plan, however, an effort has been made to indicate somewhat in detail the variation in time requirements for different types of nursing visits. This has been made possible as a result of the careful analysis made, in connection with the East Harlem Nursing and Health Demonstration in New York City, of the content, cost and length of a nursing visit in the home. Of course, this study applies to a particular section of a large city and is influenced by the conditions of the locality and the type of service rendered. Upon further consideration, however, it is noted that the average length of time required for a nursing visit as shown by this study compares closely with the figures previously utilized in different sections of the country, the total number of minutes according to this report being 51.6. The data, therefore, have the special value of having been assembled and analyzed under carefully controlled conditions, and of indicating the relative cost and length of different types of home nursing visits. As the average figures check so closely with those previously cited, and as these are practically the only detailed data on the subject, therefore, it would seem justifiable to utilize them throughout the present plan. It is hoped that similar information from other cities will be assembled for comparative purposes.

Public health nursing has come to occupy such an important place in the public health program that a large share of the budget is devoted to this work. There is a tendency, too, toward the assumption of more

ESTIMATED AMOUNT OF CLINIC AND FIELD NURSING SERVICES REQUIRED FOR 9 PHASES OF HEALTH WORK ACCORDING TO THE PRESENT PROGRAM

Type of service	Estimated number of individuals in each group	CLINIC SERVICE			FIELD NURSING SERVICE				Total number of nurses needed
		Per cent reached at clinic	Number reached at clinic	Number of visits to clinic per week*	Nurse hours of 2-hour visits for year	Per cent reached by home visits	Number of visits to all patients	Nurse hours required for year	
Communicable Disease.....	2400	....	....	....	4 416	100	2400	7200	7676
Tuberculosis.....	3700	22	800	2400	5 520	33	1200	4000	4553
Veneral Disease.....	2500	32	800	8000	6 624	16	400	1200	1834
Prenatal Care.....	2400	20	480	2880	5 520	25	600	3600	4150
Delivery Care.....	....	....	....	....	.. ....	25	600	600	4000
Postnatal Care.....	2400	....	....	....	.. ....	25	600	3600	4890
Infant Care.....	2400	25	600	6000	5- 480	....	....	9600	8720
Preschool Care.....	10500	....	....	600	1+ 124	....	....	2362	1994
School Child Care (Grade Schools).....	16000	....	....	....	.. ....	....	....	6400	4827
Total (exclusive of bedside care).....	....	....	....	....	.. ....	....	....	....	12066†
		....	....	....	.. ....	....	....	....	49883
		....	....	....	.. ....	....	....	....	24.9

* Each served by one physician

† Three-fifths of nurses' time spent in school and clinic work

and more responsibility in the provision of nursing care by official agencies, thereby relieving the burden now borne by voluntary agencies and community chest organizations. Even in many cities where the provision of bedside nursing has remained a function of voluntary agencies, there has been manifested a growing movement for consolidation and centralization of supervision and administration.

The experience of recent years has indicated that a generalized district service in which one nurse does all the public health nursing for a compact area is preferable to a plan under which half a dozen nurses visit a family for different purposes, partly because of the economy of the nurses' time involved in covering a small district and even more because of the superior personal contact which can be established by a nurse who really knows, and is intimately known by the families in her charge. In the second place, it appears that a public health nursing service which combines the care of the sick on a visiting nurse basis with the teaching of hygiene is far more effective as an educational force than a service devoted to education alone, because of the increased influence acquired by the nurse who actually renders service in time of suffering. According to modern conceptions, the ideal plan includes under one organization both the educational work performed by most health department nurses in the past and the care of the sick in the home as now performed by district or visiting nurses, usually under private auspices. There is suggested, therefore, the organization in the department of health of a combined generalized public health nursing service, including all branches of health instruction, and also the rendering of hourly nursing care, a step which seems radical in view of generally existing health department practice, but one which seems fully justified by the experience of private district nursing associations, by the practice of community nursing in small towns and by the results already attained under health department auspices in several cities. There is no substantial reason, aside from tradition, why such service should not be in part supported, so far as bedside care is concerned, by payments from patients able to pay and from insured and other groups, although this may require special enabling legislation in many cases.

In order to supply a service of the type outlined above, it would be necessary to supplement the service needed for specific preventive tasks requiring approximately 1,000 nurse hours each week, by service for hourly nursing. According to various morbidity studies, approximately 2 per cent of the population have been found to be ill at any given time. This includes maternity patients who, although not ill, are incapacitated. In one city with a well established public health nursing service offering nursing care to the sick in their homes, 7 per cent of the known sick

were receiving visiting nurse care at the time the morbidity study was made. Fifteen per cent of the 7 per cent were maternity patients. Since maternity nursing has been considered in a previous section, it will be eliminated from these calculations. On the basis of these figures, 119 persons out of 100,000 would be using the visiting nurse service daily for sickness care, if such a service were available. For 313 work days, Sundays having been excluded, this would require 37,247 visits each year, or approximately 37,550 nurse hours, or the equivalent of time of 19 nurses. Added to the 25 nurses needed for preventive work, this would give a total of 44 staff nurses. It would be best to divide the city into 40 districts of approximately 2,500 persons each and to use the additional nurses as "floaters" to meet emergencies and to cover vacation periods.

Whatever be the form of nursing adopted, whether generalized or specialized, and whether supported by official or voluntary contributions, or both, it is considered essential to the highest efficiency that all the nursing work of the department of health should be organized in a separate bureau and under the direction of a chief who is herself a nurse. Even where a specialized service is provided, and where the actual routine of the day's work of the nurse may be directed by the medical officers in charge of tuberculosis or infant hygiene, adequacy of technic and uniformity of records and procedure should be secured by nursing supervision; for the morale of a nursing staff is always highest when under the direction of a professional colleague who really understands the procedure of nursing. True democratic leadership over a group is possible only when the group is conscious of superior skill based on training and experience in the details of the work, and the consequent ability to render help in the solution of the problems of the individual members of the group. For the administration of such a large organization as is here provided for, a woman of experience* and high natural capacity will be needed and the salary should be commensurate with those paid to the other more responsible bureau chiefs.†

* This should include: (a) Fundamental technical training as outlined by the three national nursing associations; (b) Completion of a course in public health nursing in a recognized postgraduate school; or, as an alternative, at least one year of experience as a member of a staff of a well organized public health nursing association, which affords good teaching and supervision; this experience should include child hygiene nursing; (c) Demonstrated ability to direct the work of a group of public health nurses.

† A recent survey by the National Organization for Public Health Nursing, of salaries of chiefs of nursing organizations, official and voluntary, in cities of 100,000 to 200,000 population revealed a range of \$100 to \$335 a month. Salaries of supervisors ranged from \$110 to \$200; and salaries of staff nurses, from \$75 to \$160, with a median of \$125.

Adequate supervision is one of the vital essentials of good public health nursing and for a staff of 44 field nurses, 5 nursing supervisors should be provided, including among their number specialists in communicable disease nursing, tuberculosis nursing, venereal disease nursing, infant hygiene, and school hygiene. There should also be added to the staff at least 1 specialist in nutrition work, and 1 in mental hygiene, and in certain cases possibly 1 in posture work, who may not necessarily be nurses, although they must be familiar with nursing principles and problems, and able to work in an advisory and supervisory capacity with the staff nurses in connection with their problems in the home and in the clinics.* If the generalized program is to succeed, the work of the generalized field nurses must be guided by specialists of this type, and the staff must be so organized that staff nurses will consult these specialists whenever in doubt as to the solution of the problems they meet.

On the plan proposed, the budget of the bureau of public health nursing will be a large one as indicated below. It seems fair to assume, however, that 15 per cent of the gross cost can be collected under a proper administrative plan, from sick patients and insured groups. This would make the total cost about 86.2 cents per capita, an allotment none too high for a public health nursing service adequate for modern requirements. The size of the budget would depend somewhat upon the community because of the variation in the cost of living in different communities and also because of the fact that it may be necessary to pay higher salaries in order to retain the right type of nurse in communities where living and social conditions are undesirable. The budget should be about as follows:

Salaries

Chief of Bureau	\$4,000
5 Supervisors (average salaries).....	10,000
2 Special Supervisors (average salaries).....	4,000
44 Staff Nurses (average salaries).....	70,400
Clerical Staff	5,000
Maintenance †.....	8,000
<hr/>	
Total	\$101,400
Income from fees	15,210
<hr/>	
Net Budget	\$86,190
<i>Per capita</i>	0.862

* The addition of these special supervisors to a nursing staff was suggested by Harriet Leck, R.N., among others, American Health Congress, Atlantic City, May, 1926.

† Increase from original plan following suggestion of Sophie Nelson, R.N., American Health Congress, Atlantic City, May, 1926.

VI. *Bureau of Sanitation*

According to current tendencies in municipal health practice the bureau of sanitation of the department of health in a city of 100,000 inhabitants should include general sanitary inspection and the supervision of housing conditions in occupied buildings, but should not include the approval of building plans or the inspection of plumbing in new buildings. The latter functions are not primarily health functions—and the health officer has administrative responsibilities of sufficient magnitude without being burdened with routine duties of this type. For the same reason the actual administration of the collection and disposal of garbage and refuse should be handled by one of the engineering departments of the city rather than by the health department. The transfer of these duties, which are not primarily health functions, to other official departments where they more rightly belong, makes it possible to apply the resources of the health department to more productive health work.

In order to fulfil its proper functions the bureau of sanitation should have at its disposal a broadly drawn legal definition of what constitutes a public nuisance. It should operate so far as conditions of occupancy are concerned, under an adequate housing code, and it should have the right to issue permits for lodging houses and offensive trades of various types.

Its duties should comprise a prompt and efficient handling of complaints, but its principal attention should be given to regular and systematic inspections, on the initiative of the department, for the discovery of nuisances and the maintenance of sanitary conditions. According to present standards, there may be expected about 3,000 inspections and reinspections per 100,000 population with remedy of at least 80 per cent of the insanitary conditions discovered during the year. The coöperation of other official agencies in this inspection work, particularly the police department, may prove of considerable value in conserving personnel and in securing prompt attention to insanitary conditions. Inspection of such nuisances as noise, unsightly litter of papers and rubbish, ashes, garbage, except on special complaint, keeping of domestic pets, untidy yards, and cellars, vacant lots and dumps and similar conditions of physical environment, undesirable but scarcely dangerous to health, might well be handled by the police or engineering department. Records of inspections and of complaints should be kept classified by street and number, the best method, perhaps, being the use of the envelope system. Information should be available to show by months the number of sanitary inspections and reinspections and the proportion

of insanitary conditions remedied. The aim of the bureau should be to secure voluntary compliance with its orders and to conduct as few prosecutions as possible.

The extent and character of sanitary inspection service needed in a given case can only be determined by a knowledge of local conditions. In certain areas, antimalaria work may be one of the major problems demanding attention, while in other cities, greater emphasis might be needed in general sanitation work. The personnel and budget requirements will consequently vary with local needs. Care should, of course, be exercised to insure that sanitary inspection shall not be featured out of all proportion to other health activities which may have a more direct effect on the prevention of sickness and deaths. The industrial hygiene problem is one which deserves greater consideration than it has received, but in only very few of the largest cities is there definite provision for this work by the local health department. Particular attention should be paid to the 4 problems of sanitation which are of major importance from the standpoint of disease control:

1. Privy vaults
2. Stable manure
3. Mosquito breeding
4. Rat breeding

In a modern city of 100,000 population, privies should be entirely eliminated as rapidly as possible; but those that remain should be maintained in a fly-proof condition. Manure should be stored in bins with impermeable bottoms and removed weekly. Bodies of water, large or small, which may breed mosquitoes should be specifically declared to be nuisances; and, in seaboard cities, at least, rat-proofing ordinances should be in force.

If the health department is relieved of the many problems enumerated which are more properly handled by engineering, building, and plumbing divisions of city government, the present practice of American health departments indicates that under average conditions 3 inspectors should be able to handle the routine work of the bureau of sanitation. They can work best as district inspectors, each covering a section of approximately one-third of the population, although it is often well to provide for the rotation of districts. The chief of the bureau, under whom these district inspectors work should be trained in elementary sanitary engineering, and able to deal with the more complex problems of mosquito control, rat control, and the like, and to advise the department in regard to any engineering problem which may arise.

A reasonable organization for this bureau would seem to be the following:

Salaries	
Chief of Bureau	\$3,000
Three District Inspectors	4,500
Clerk.....	1,000
Maintenance.....	1,000
<hr/>	
Total.....	\$9,500
<i>Per capita</i>	0.095

VII. Bureau of Foods

A. Division of Milk

This division should maintain a service for the control of milk supplies from the source to the point of delivery, and should endeavor to educate the public in the value of an adequate supply of safe milk.

The following elements seem essential for the adequate protection of the public from the danger of milk-borne disease.

1. An ordinance should be in force requiring the licensing of all milk dealers operating within the city limits and providing for the safeguards recognized as essential in the production and handling of milk. This ordinance should be carefully framed to conform with local conditions and modern knowledge.

2. Inspections should be made twice a year or more often, of all farms supplying the city. The results of these inspections should by preference be recorded on the standard score card of the U. S. Department of Agriculture.

3. Creameries and milk stations should be inspected at least twice a month, preferably every week. Special consideration should be given to the methods of sterilization of bottles, cans, and equipment; to the effectiveness of operation of pasteurizing machinery; to refrigeration methods; to the health of the workers; and to general cleanliness.

4. Pasteurization should be defined by law, and the pasteurization of all milk except possibly a small amount (rarely over 2 per cent) of the highest grade, as that recognized by medical milk commissions,* should be required by ordinance. Pasteurization plants should be controlled by frequent inspection, weekly or more often, and laboratory tests, and the taking of continuous temperature records. Recording thermometers should be frequently checked against standard thermom-

* The importance of close supervision of "certified milk" production by such bodies as Medical Milk Commissions was emphasized by Matthias Nicoll, Jr., M.D., Commissioner of Health of New York State, American Health Congress, Atlantic City, May, 1926.

eters known to be in effective operation as a result of tests by the U. S. Bureau of Standards.

5. Temperature standards should be enforced with regard to milk in transit and that held for sale. Efforts should be made to have milk cooled promptly after pasteurization to a temperature of 50° F. or lower, and held at a temperature as low as this until it is delivered to the consumer.

6. Samples for bacteriological and chemical examination should be collected at frequent intervals from stations, creameries, wagons, and stores. In several cities it is the practice to publish periodically the results of a series of laboratory analyses from each milk dealer.

7. All cattle producing milk to be sold raw should be required to be tuberculin tested regularly, with prompt removal of reacting animals from the herds.

8. All bottled milk, by ordinance requirement, should be plainly marked to show the name of the producer or distributor, the grade, and the date of production or pasteurization.

9. All handlers of milk to be sold raw and all handlers of milk after pasteurization should be subject to a systematic and frequent medical examination.

For the supervision of the milk supply of the city along the lines outlined above, 2 inspectors will be required, one devoting his attention to farm inspections and the other to the supervision of creameries and pasteurizing plants within the city limits. They should work under the direction of the chief of the bureau of foods, who should himself be in close touch with the larger pasteurizing plants and should be competent to advise concerning their operation. If he is a veterinarian, as suggested in the succeeding section, he should stimulate and supervise the testing of herds producing high grade raw milk. It is obviously essential that the chief of this service be a man trained in methods of dairying and sanitation. The time of the 2 inspectors should be sufficiently free for them to keep their own records, so that no special clerical assistance need be provided here. A fairly large allowance for maintenance must, however, be made to allow for traveling expenses in the inspection of farms. The following budget is suggested:

Salaries	
Chief (one-half salary charged to food)	\$1,500
2 Inspectors	3,000
Maintenance	1,000
<hr/>	
Total	\$5,500
<i>Per capita</i>	0.055

B. Division of Food and Drugs

Aside from the control of the milk supply, which has been discussed above, the supervision of foods and drugs by the municipal department of health should include the following activities:

1. The granting by some branch of the city government of permits for all premises where food is prepared or sold otherwise than in package or can. This should, for example, include hotels, restaurants, bakeries, groceries, candy stores, markets, slaughtering establishments (including poultry), soda fountains, ice cream stands and fruit stands.

2. The regular inspection and scoring of such establishments. In many cities it is required that scores of food handling establishments be posted in a conspicuous place. It is calculated on the basis of actual practice to-day that 4,000 inspections per 100,000 population may be expected.

3. The promulgation and enforcement of special regulations preventing the sale of shellfish from polluted sources. This is, of course, primarily a problem for state and federal health agencies, but likewise concerns municipal health departments of seacoast cities.

4. The promulgation and enforcement of special regulations requiring the sterilization of utensils used in serving food and drink to the public. This is one of the most important provisions of all, but one of the most difficult of realization.

5. The enforcement of special regulations requiring the protection of all foods and drinks to be consumed by the public without subsequent cooking, from possible contamination with disease germs by means of dust, flies and other insects, and promiscuous handling.

6. The maintenance of a public abattoir for local slaughtering and the exclusion from the city of all meat not inspected either at this abattoir or elsewhere under the federal law.

7. The medical examination at regular intervals of all persons handling food for public consumption. The practical value of such work has not yet been demonstrated, but it is included here since the practice is already so general. These examinations should have as a part of the service, instruction in the hygienic fundamentals of food handling and personal hygiene, by lecture or demonstration, or both.

8. The control of the quality and strength of drugs on sale in the city by the systematic collection and analysis of samples where this is not otherwise provided for under city or state departments.

For the carrying out of the routine inspection work, 2 special inspectors should suffice, according to general present practice. They should

work under the direction of the chief of the bureau of foods, who may well be a veterinarian, if maximum efficiency is to be secured.

No allowance is made for the maintenance of the abattoir, since this can be made self supporting by a proper fee system and the cost of the general inspection can also in some measure, properly be met by a fee system. The medical examination of food handlers should be conducted by the bureau of communicable diseases where it logically belongs. The examination of drugs is provided for under the laboratory budget. For the specific purposes of food control, the following allowance will be necessary:

Salaries	
Chief (one-half salary charged to milk control).....	\$1,500
2 Inspectors	3,000
Maintenance.....	600
<hr/>	
Total.....	\$5,100
<i>Per capita</i>	0.051

VIII. *Bureau of Laboratories*

A well organized public health laboratory is one of the foundations of effective health work and is an invaluable means of coördinating health activities. The laboratory of the department of health should be prepared to render the following services:

1. The bacteriological examination of cultures for diagnosis and release in diphtheria (including virulence tests), and of specimens for diagnosis, and release where indicated, of tuberculosis, typhoid fever, malaria, syphilis, gonorrhea, pneumonia (typing), meningitis, and in southern cities, hookworm and other intestinal parasitic diseases.

2. The chemical and bacteriological examination of milk.

3. The chemical and bacteriological examination of the public water supply and of private wells and bottled waters. If the public water supply is regularly and adequately examined in a laboratory attached to some other department of the city government these tests may be omitted by the health department, but provision should be made for the daily transmission of the results of all such examinations to the health department.

4. The chemical and microscopical examination of foods and drugs.

5. Other special tests, such as examinations of pathological specimens, urinalyses for health department clinics, testing of the disinfectants and the like, as occasion may require.

6. The study of research problems of a public health character.

7. The distribution of biological products for prevention and treatment of disease.

Careful records should be maintained on file to show the number of specimens of various kinds received, the number of examinations made of each type of specimen, and the results obtained. Present standards suggest that the laboratory should be able to make some 10,000 examinations a year. For example, it might be expected that these examinations would include 250 cultures for diphtheria diagnosis or release per annual death, 75 specimens for typhoid diagnosis or release per annual death, 5 specimens for tuberculosis per annual death, 12 specimens for syphilis and 5 for gonorrhea per case reported, 100 samples of milk per 100,000 gallons distributed, and 1 examination of water daily.

The chief of the bureau of laboratories in a city of this size should be a bacteriologist, with 1 trained assistant who should be a chemist able also to assist in bacteriological work.

The budget should be about as follows:

Salaries	
Chief of Bureau	\$4,000
Assistant (chemist)	2,000
Technician.....	1,000
Clerk.....	1,000
Maintenance.....	2,000
<hr/>	
Total.....	\$10,000
<i>Per capita</i>	<i>0.10</i>

THE HEALTH DEPARTMENT BUDGET

An attempt has been made in the foregoing pages to build up step by step a health department organization competent to deal adequately, but in no extreme or fanciful fashion, with the fundamental problems of municipal health administration. It remains now to combine the various bureaus and sections, which gives us the budget shown on page 51 for the department as a whole.

The budget proposed appears large on first consideration. Excluding the cost of hospitalizing cases of communicable diseases, it comes to \$1.97 per capita, about two and one-third times the average allotment made for municipal health departments at the present day, and about three and one-half times the average expenditures for strictly health functions. It must be remembered that this budget includes many types of service, such as infant welfare and tuberculosis clinics, and above all, public health nursing service, which are now frequently performed by private agencies. If the expenditures of such agencies

BUREAU AND DIVISION	SALARIES	MAINTENANCE	TOTAL	CENTS PER CAPITA
I. Administration				
A. Administration	\$11,000	\$2,500	\$13,500	13.5
B. Public Health Education	2,200	2,000	4,200	4.2
II. Vital Statistics	4,000	500	4,500	4.5
III. Communicable Disease Control				
A. Epidemiology	6,800	2,000	8,800	8.8
B. Tuberculosis	6,400	1,500	7,900	7.9
C. Venereal Diseases	6,400	2,500	8,900	8.9
IV. Child Hygiene				
A. Maternity, Infant and Preschool Hygiene	9,000	1,500	10,500	10.5
B. School Hygiene	20,500	2,000	22,500	22.5
VI. Sanitation	8,500	1,000	9,500	9.5
VII. Foods				
A. Milk	4,500	1,000	5,500	5.5
B. Food and Drugs	4,500	600	5,100	5.1
VIII. Laboratories	8,000	2,000	10,000	10.0
<hr/>				
Total for fundamental health activities other than nursing and hospitals	\$91,800	\$19,100	\$110,900	110.9
V. Public Health Nursing	79,390	6,800	86,190	86.2
Communicable Disease Hospital *.			20,000	20.0
<hr/>				
Grand Total	\$171,190	\$25,900	\$217,090	217.1

* Exclusive of tuberculosis hospital which may be included in the health department budget in certain cities.

for such purposes be added to the appropriations of the health department, it will be found in those cities which have nearly adequate facilities, that the total approximates the budget set forth here.

It should also be emphasized again that in formulating this plan, it has not been the intention to suggest radical changes in present administrative programs of cities, nor to minimize the importance of the work of voluntary or other agencies. Whenever the public health work of such agencies is adequate and presumably better handled than would be possible through local health department support, it would seem unwise to make an administrative change. In such cases the personnel and funds provided through agencies other than the health department should merely be deducted from this budget suggested.

From a purely financial standpoint it perhaps matters little whether the cost of health service is met by taxation or through private gen-

erosity. The general tendency of the present day is clearly, however, in the direction of transferring such health activities as those contemplated in the outline above from private to public auspices.

For cities of over 100,000 population, the plan outlined will, of course, require substantial modification, perhaps with the creation of bureaus instead of divisions in certain instances, and probably with some reduction in the proportion of certain types of personnel and in per capita cost.

It seems important to repeat that no new and untried lines of public health work have been included in the outline here presented. In order to be on the conservative side no provision has been made even for such activities as those of mental hygiene (except for a special supervisor in the nursing bureau) and industrial hygiene, which many believe should be undertaken by a progressive department, but which are not yet so generally practiced as to have become standardized municipal health department functions. Where standards of health practice have been used, they represent for the most part, actual achievement in 1923 in the upper 25 per cent of the 100 largest cities of the United States. In cities where these better standards for particular activities are realized, it is not found that other major health functions have been neglected to make way for a special feature, as has sometimes been suggested might occur.

Approximately the staff and approximately the budget indicated above (whether from public or private sources) seem essential to the adequate protection of the health of the community; and every dollar spent along the lines laid down will bring ample returns in the strengthening of the vital force and the economic resources of the community.

SECTION III

PLAN OF ORGANIZATION OF COMMUNITY HEALTH WORK FOR A CITY OF 50,000 POPULATION

INTRODUCTORY STATEMENT

THE following plan of organization of community health work for a city of 50,000 population is essentially a revision of the plan originally prepared by the Research Division of the American Child Health Association and based upon the experience in cities of 40,000 to 70,000 population in 1923 and published in *A Health Survey of 86 Cities*. Since the publication of the original plan, progress has been made in public health administration, the plan has been studied and applied, suggestions as to certain desirable modifications have been made by administrators in the field, and new standards have been suggested. As in the original plan, and as discussed in detail in Section I, only the fundamentals of modern municipal health service have been included in this outline. The alterations here made in the original plan consist chiefly in the raising of various standards of achievement to conform with the standards of the *Appraisal Form*, resulting in an increase in personnel and budget, and in the curtailment of certain discussions, without appreciable modifications of its basic principles and with only the necessary alterations in the original text.

BOARD OF HEALTH

The proper organization of the health machinery of a community recognizes the desirability of a board of health as a definite part of the city government. It is generally considered good practice to have the members of this board appointed by the mayor. While the health officer should sit with the board at its meetings, it seems best in a city of this size that he should not be a member of the board, but that he should be its executive officer.

Whether elective or appointive, the board might consist of five unpaid members, representing the professional and lay interests of the community. A reasonable composition of this board of health would be: a physician, a sanitary engineer, a forward looking business man, and a man and a woman with broad public interests. The election or appointment of these members should be for a period of five years, with provision for replacement of one member annually.

Broadly speaking, the functions of the board should be to employ a health officer or commissioner of health, to formulate rules and regulations, consistent with those of the state, for the protection and promotion of community health, to act upon the annual budget prepared by the health officer, and to act as an advisory body to the health officer. Ordinarily the board should not exercise direct administrative authority, except in those cases where the personnel and local conditions make such an arrangement necessary. There are many advantages in holding regular meetings of the board, as for example, once a month. This tends to create a consciousness of responsibility.

ADVISORY COMMITTEE

In addition to the board of health, there might also be organized by the health officer a group of interested, public spirited citizens, independent of the municipal administration, to be known as the advisory committee on public health. Such a committee might be composed of either a few individuals selected by the health officer to be of particular assistance to him, or a number of individuals delegated, at the request of the health officer, by the various health, social, professional and business organizations. The primary purpose of this committee should be to give sympathetic consideration to the problems of the health department as they affect the community at large.

OTHER ESSENTIALS

As previously indicated, there should be sanitary rules which are up-to-date, yet within legal limitations, and adequate means of enforcing such a health code. This requires a staff of trained workers, suitably housed and adequately paid. It should be noted in this connection that the proper housing of the department is an important consideration which has been seriously neglected in many cities. Provision should be made in a central health building for suitable space conveniently arranged to accommodate all the department bureaus and also to provide clinic rooms for special purposes.

HEALTH OFFICER

The administrative head of the department of health should be a person with special education and training in public health administration and in educational methods of health promotion. The health officer should have those personal and professional qualities which command the respect of the community and the hearty coöperation of the medical profession. Because of his very intimate association, in a city of this

size, with numerous medical problems, there are certain advantages to be gained if the health officer be medically trained.* However, the training of medicine alone, or sanitary engineering alone, or any other scientific training alone, is not now sufficient, for it is realized that this position demands the full time of a person who has fitted himself through education and experience for administrative health work. The time has passed when the position of health officer can be regarded as a plum for the political favorite, or as an additional honor for an already busy physician.

ORGANIZATION OF HEALTH DEPARTMENT

The work of a health department of a city of 50,000 may follow the example of large cities and be highly organized into so-called divisions or bureaus, or it may be very simply organized without such distinctions of administrative functions. For a number of reasons it would seem advisable that several distinct divisions of service be recognized. The discussion of the health department organization and activities will be based on the following six major service divisions, consideration of the budget of all six divisions being subsequently presented.

- I. Division of Administration and Records
 - A. Administration
 - B. Public Health Education
 - C. Vital Statistics
- II. Division of Communicable Disease Control
 - A. Control of Epidemic Diseases
 - B. Tuberculosis
 - C. Venereal Diseases
- III. Division of Child Hygiene
 - A. Maternity Hygiene
 - B. Infant Hygiene
 - C. Preschool Hygiene
 - D. School Hygiene
- IV. Division of Public Health Nursing
- V. Division of Inspection
 - A. Sanitation
 - B. Milk
 - C. Foods
- VI. Division of Laboratories

I. Division of Administration and Records

A. Administration

The general administration of the department of health in a city of

*Emphasized by Thomas Tetreau, M.D., American Health Congress, Atlantic City, May, 1926.

50,000 population should be conducted by the health officer,* assisted by a capable secretary and one clerical assistant. In addition to purely administrative procedures, it is believed that the important function of public health education and vital statistics should be included, the health officer being the registrar of vital statistics.

B. Public Health Education

The dominant characteristic of the modern public health movement is its emphasis on health education. Consequently, a department of health should utilize the educational value attached to its every act and service in order to establish an individual and community consciousness in regard to health matters. The proper functioning of this service makes it desirable that the health officer be experienced in this type of work, and that his secretary be qualified to assist in carrying out the details of the following activities:

1. Preparation of material for, and training of the staff in, making every service to individuals or groups of citizens convey a direct health message.
2. Preparation of all departmental reports, bulletins, circulars, news stories, radio talks and exhibits.
3. Arrangement of talks before civic organizations, and utilization of moving pictures.
4. Coöperation with the department of education in the planning of the health phase of the school program.

C. Vital Statistics

The registration, analysis, and interpretation of births, deaths and marriages, and communicable diseases, represent the vital bookkeeping of a community's health. These records enable the health officer to balance his health books, and to determine, in a manner, the community's health assets and liabilities. They furnish him with the information which he requires to plan his work wisely and efficiently. For this reason the administration of this function should be under the local health department.

The time is still distant when the reporting of illnesses from important causes will be practiced with sufficient thoroughness to permit the health administrator to know with any degree of accuracy the real state of sickness and health of his community. But it is obvious that such

* A suggestion as to the distribution of his time might be as follows: Supervision of departmental activities, 10 hours per week; office hours to meet public, 12 hours per week; public health education, 10 hours per week; vital statistics, 4 hours per week; investigation and development, 8 hours per week.

information would be vastly more valuable to him in his efforts to prevent sickness and death than simply the knowledge of the existence of certain communicable diseases, and of deaths.

The importance of accurate and complete legal records of births, deaths and marriages for the individuals concerned, for the community, and for the state, is obvious. Yet in only 4 of the 86 cities studied by the American Child Health Association did the surveyors find the analysis, interpretation and use of these records to be thoroughly satisfactory. The standards endorsed by the United States Census Bureau and the encouraging progress during the past decade in the extension of the birth and death registration areas give promise for the future. That there is still need for improvement is shown by the fact that in 1925, only 75.9 per cent of the population of the country was included in the birth registration area, and only 91.6 per cent in the death registration area. It should be borne in mind that even in areas where the reporting of these vital data may be sufficiently complete to justify their inclusion in the official registration areas, this in no wise assures that effective analysis and intelligent use of the information is made. In order that the reasonable usefulness of this office to the community may be obtained, and the full value of the records may be realized, the following procedures* should be carried out:

* In order to arrive at an approximate idea of the work involved in the administration of this service, the average conditions found to exist in a city of this size have been assumed on an annual basis as follows:

600 deaths
1,200 births
1,000 marriages

The handling of these records and the proper functioning of the office require certain items of work:

2,800 copies (births, marriages and deaths) for transmission to state registrar
1,200 certificates of birth registration sent to parents
600 burial permits
1,200 certified copies (birth or death certificates)
Indexing 2,800 certificates
Receiving and recording 2,000 communicable disease reports
Keeping of chronological charts and spot map
Answering telephone and office calls
Verifying birth and death certificates
Tabulation of data from birth and death certificates monthly and annually

On a daily basis the time required for these services has been estimated as follows:

19 certificates to be copied.....	2 hours
9 items to be indexed.....	$\frac{3}{4}$ hour
7 reports of communicable disease to be received and recorded.....	$\frac{1}{2}$ hour
Routine procedure of chronological charts and spot map.....	$\frac{1}{2}$ hour
Telephone and office calls.....	2 hours
Tabulation of data from the certificates of births and deaths.....	$\frac{1}{2}$ hour

1. *Births*: The original certificate must be scrutinized for errors or omissions and necessary corrections made by communication with the physician filing the same, or otherwise before being copied. It must be entered in an index alphabetically by surname, with all given names; the entry should also show the sex, date of birth, and certificate number. The births should be tabulated by country of birth of the mother, and a certificate of birth registration should be made out for delivery to the parents.

2. *Deaths*: The original certificate must be scrutinized for errors and omissions, and necessary corrections made by communication with the physician filing the same, or otherwise, before a burial permit is issued. The certificate must be copied and indexed alphabetically by surname, while the entry must also show all given names, sex, age, date of death and certificate number. The death should then be tabulated as to age, cause, sex, occupation, convenient residential area, nativity and, if age is less than one year, it should also be classified by age in day, week or month subdivision, and by nativity, and age of the mother. If the death is due to a communicable disease, it should be checked against the reports of that disease and entered in a spot map. All deaths of infants born locally should be checked against the index of births and the certificates to discover errors and omissions.

3. *Marriages*: The information on the marriage license should be copied on an appropriate form for office records. All licenses should be indexed alphabetically and separately by surname of the contracting parties.

4. *Communicable Disease Reports*: The registrar of vital statistics will also receive reports of all cases of communicable disease.* The information required in these reports should be sufficient to indicate the proper departmental procedure without further investigation. It should include such items as disease, date of onset, name, address, sex, date of birth of the patient, a list of contacts, name of milk dealer and, if for a school child, the school attended. If any steps have been taken to protect the contacts these should likewise be reported. A copy of the report should be made and sent to the nurses responsible for communicable disease follow-up. The case should then be entered on a chronological chart, in the office of the health officer. For diseases which are unusually prevalent, a spot map should also be maintained.

* Standard forms suggested by the Sub-committee on Record Forms of the Committee on Administrative Practice of the A.P.H.A. should prove useful.

PERSONNEL AND BUDGET

The above outline indicates the need for a trained person as health officer, assisted by a secretary-stenographer, whose time would be divided between activities concerned with general administration, education and vital statistics.

While the health officer should be the registrar of vital statistics, his secretary may well have the immediate supervision of the work and be recognized as assistant registrar. The qualifications desirable for the assistant registrar are accuracy and a sense of responsibility, an interest in the orderly presentation of data, and an appreciation of the importance of records, with a desire to make them of maximum value to the community. The nature of this position and the qualifications desired suggest the appropriateness of a woman incumbent.

One clerk-typist would be needed for assistance in administrative and record work. With a reasonable allowance for postage, stationery, printing, traveling expenses, and so forth, the budget for the division of administration and records would be as follows:

Salaries	
Health Officer	\$5,000
Secretary-Stenographer	2,000
Clerk-Typist	1,200
Maintenance, etc.	
Printing (educational pamphlets, bulletins, reports, films, lantern-slides, exhibits)	\$1,500
Attendance at national and state meetings (including other staff members)	500
Transportation (Maintenance of Health Officer's own car)	300
Library	50
Office Supplies	150
	<hr/>
	2,500
Total	<hr/>
	\$10,700
<i>Per capita</i>	0.214

II. Division of Communicable Disease Control

Enforcement of Sanitary Code: The sanitary code of the local ordinances should provide regulations for the control of communicable diseases. It is advisable to give broad discretionary power to the health officer in the interpretation and enforcement of these regulations. Isolation cannot be effectually maintained under many of the housing conditions which are found in cities, or with individuals who cannot be made to appreciate the importance of the measure or who refuse to

obey. The necessity of hospitalization as the alternative should be taught the community and should be made compulsory when, in the judgment of the health officer, effective isolation cannot be maintained on the premises. Furthermore, certain diseases as smallpox and laryngeal diphtheria requiring intubation can be safely cared for only in a hospital.

A. Control of Epidemic Diseases

In the plan of organization of the health department for a city of 50,000, it is not believed that the full-time service of a physician will be required in the control of communicable diseases. Provision has already been made for the receiving of case reports and proper recording by the assistant registrar of vital statistics and it is recommended that the health officer direct and supervise the epidemiological studies. The nurses assigned to communicable disease cases will, with careful teaching, soon be capable of conducting the routine field investigation, and be able to place the facts before the health officer for analysis and correlation. This work, together with the details of analysis of vital statistics, which the health officer will also carry on in collaboration with the assistant registrar, will furnish him first-hand knowledge most valuable in his public relations.

1. *Reporting:* According to present standards, and exclusive of epidemics of special virulence, if less than 10 cases per death from typhoid, 15 cases per death from diphtheria, 50 cases per death from scarlet fever, 100 cases per death from measles, and 25 cases per death from whooping cough are reported, it may be assumed that reporting of communicable diseases is incomplete. Excluding tuberculosis and venereal diseases, which will be considered separately, the number of cases of disease reported under normal conditions, exclusive of epidemics, will rarely exceed 1,200, and the probable number of calls for diagnostic service will, doubtless, be within a hundred. On such a basis this service, requiring 1 to 3 hours per week of the school physician, will not impose too great a burden and will keep him in touch with the private practitioner as well as indicate the type of infection locally present.

2. *Medical Supervision:* The consultant diagnostic work of the department calls for highly technical service from a physician, and it is believed that the school physician, who is incidentally exercising this function in his examinations, is best fitted to assume this responsibility. It should be the function of this service to furnish the private physicians of the community expert advice and consultations on communicable diseases, relieving the family physician of the responsibility of making diagnoses in those cases where reasonable doubt may exist.

It is true that such a service may occasionally be used somewhat freely by the private physician who wishes to evade the unpleasant consequences of making a diagnosis unwelcome to the family, but such abuse is not likely to be a serious matter. Effective service of this character should develop a strong bond between the local physician and the health department.

3. *Nursing Supervision:* It is proposed later in this section of the report to discuss the administration of the nursing service. In the following sections, however, when discussing those health activities which require the services of the nurse, the necessary amount of time needed will be indicated, on the basis of an assumption of the size of the problem to be met and the amount of work an average nurse can satisfactorily perform.

It may be assumed, as above, that normally the number of communicable diseases reported to the health department, exclusive of tuberculosis and the venereal diseases, will not exceed 1,200 annually. It is contemplated that a nurse will visit all cases reported. On the first visit of the nurse provisions of the sanitary code as to protection of contacts, and hospitalization will be executed. The case history with all details necessary for proper epidemiological study will be written up at this time. Institution of isolation and placarding will preferably have been done by an inspector preceding the nurse's visit.*

Important as these items of service may seem, they are but the routine formalities of the nurse's work. Her real worth and service depend upon her presentation to each household of a clear and detailed plan of nursing care of the patient for safety to himself and to the public at large; the justification for, and reasonableness of, all restrictive measures; and detailed and practicable advice on the organization of the household in isolation. The nurse must be prepared to demonstrate and to teach the technic of home care of communicable diseases. In cities with large foreign born populations it may be desirable to have the basic information for this service printed in several languages, to be given the mother or attendant for reference after the nurse has left; but it should not be permitted to supplant the sympathetic, painstaking instruction which only the highest type of public health nurse can give. Such printed directions can often be obtained from the state department of health.

The number of nursing visits necessary for this care and instruction will differ in different diseases and in different families. If measles and whooping cough are included, the number of visits for all diseases

* Suggested by W. P. Shepard, M.D., Health Officer, Berkeley, California, American Health Congress, Atlantic City, May, 1926.

will probably average 3 per case. The 1,200 cases will then receive 3,600 visits, requiring 3,630 nurse hours (60.5 minutes per visit), calculated on the basis of data assembled by the East Harlem Nursing and Health Demonstration pertaining to the length of nursing visits. According to the standard explained in detail in the nursing section of this plan, the average number of nursing visits in the 250 working days of 8 hours each amounts to 2,000. In cities without adequate transportation facilities or with large areas, it would be necessary and a real economy to provide automobile transportation for nursing work in outlying sections of the city where houses visited are widely separated.

4. *Serums and Vaccines*: The prompt and effective use of serums and vaccines for prophylactic and therapeutic purposes is a procedure which must be a serious concern of the health department. It is not sufficient that the health department laboratory should provide these products free of charge upon request, or that the health department merely record on the report of communicable disease made by the family physician the name of contacts and whatever protective actions have been taken. The health department should encourage the family physician in every possible way in the prompt therapeutic use of diphtheria antitoxin, and immunization of contacts in cases of diphtheria, typhoid fever and smallpox. This may call for repeated visits and the most patient persuasion, but the educational results will repay the effort.

4. *Immunization Clinics*: With the scientific proof of the practicability of the protection of communities by active immunization against diphtheria, smallpox, and typhoid fever, it has become increasingly one of the major responsibilities of the department of health to promote this immunization by active and aggressive measures. This protection, so far as is possible, should be done by private physicians who should report such immunizations to the health department. In order to secure this protection, three lines of attack should be followed: first, the education of the community, both laymen and the medical profession, by all practicable means in regard to the value of widespread protection; second, the establishment by the health department of demonstration immunization clinics for special groups, such as the preschool and school child, including children in institutions; and third, the promotion of immunization work on the part of the large industrial and commercial organizations at their own expense.

If the health department concentrates its activities upon one of the early age groups and, through coöperation with the private physicians and through its own clinics, secures the immunization annually of a number of children equivalent to the number of births, it will be a matter of but a few years before the percentage of the child popula-

tion protected will be so large as to make impossible such epidemics as are now allowed to occur. Accordingly, the number of cases of these diseases will be reduced to a point where they become a rarity. Active measures of this nature are among the best indices of a progressive and effective health department. Once organized, the routine immunization of the new crop of susceptibles will be considered no more of a task than are several of the other recognized duties to every child. It will be put in the same category as the prophylactic treatment of babies' eyes with silver nitrate solution, the delivery of certificates of birth registration, and thorough examinations preliminary to school entrance.

If each year 1,100 children, or 25 per cent of the preschool population, were immunized against diphtheria and smallpox at the health department clinic, it would require an average of two 2-hour clinics a week, and the nursing time required would be only 208 hours, or one-tenth of a nurse's 2,000 yearly hours of service. The work should be so organized as to come at times of minimum pressure of other work. The summer months are ideal for such work among the preschool children, and other times for institutional work.

6. *Hospitalization*: Provision should be made for hospitalization of at least 40 per cent of the cases of typhoid, 25 per cent each of the cases of diphtheria and scarlet fever, and 75 per cent or more of the cases of smallpox. Expenses may be estimated as approximately \$5,000, on the assumption that not more than five beds on the average will be occupied by individuals who cannot afford to pay \$20 a bed per week. While the city should, for its own welfare, hospitalize at its expense all patients needing this care for the public good, every effort should be made to encourage the family to meet this responsibility directly or through sickness insurance.

B. *Tuberculosis*

The present-day armament against tuberculosis demands a large variety of weapons. It requires a frank, reasonable and coöperative attitude of mind on the part of the community, and especially on the part of the patients and their physicians. It requires on the part of the physicians the faithful performance of the irksome duty of reporting cases of the disease as early as possible to the department of health. It necessitates the development of consultation clinics where careful physical examinations may be made and diagnosis established. It calls for a public health nursing staff which will study home conditions of patients and interpret and adapt the physician's orders to the conditions in the home, assist in the hospitalization of patients, control con-

tacts, and perform many other services. It expects the community to share in the cost of erection and maintenance of a sanitarium for the proper care and instruction of its patients. It must see that necessary laws are passed to protect its citizens from infected milk and food supplies, and from other menaces. It should encourage the private agency to help in those directions in which it is best fitted to serve. And lastly, it must see that the public is educated to appreciate the importance of a healthy, normal way of living, of bringing up children with healthful habits, of living in the open, of playing in the sunshine, and of giving the handicapped child a chance to catch up with his playmates.

What such a program as the above requires of a city of 50,000 population in service, personnel, organization and expenditure will be described in the following pages.

1. *Reporting of Tuberculosis*: It is probable that there are in the average community about 9 active cases of tuberculosis for every annual death. It is true that many of these are unrecognized and many more are unreported. As the effectiveness of measures against tuberculosis depends upon the early recognition and prompt reporting of the disease it is most important that every effort be made to bring the proportion of reported cases up to the above standard. The failure to report tuberculosis is strikingly shown in the 86 smaller cities, only 67 of which could supply information on this subject. In these cities in 1923 but 1.6 cases were reported for every death. In 27 cities the records show more deaths than cases. It is probable, moreover, that the majority of these cases were reported in the advanced stages of the disease, or just prior to death.

What is the nature and extent of the tuberculosis problem in the average city of 50,000 inhabitants? No statement based upon averages can be expected to fit exactly the conditions found in any particular city. Such a statement may, however, fairly approximate the conditions in at least a majority of such communities. If it be assumed, then, in a city of 50,000 that the death rate from tuberculosis of all forms is 80 per 100,000 population, or actually 40 deaths annually, the number of active cases in the community may be estimated at 360, using the ratio of 9 cases per death. It is perhaps reasonable to assume that there are for every active case 3 family contacts and one arrested case. This would mean that there were potentially the following number of individuals (indicated in the following table) of whom the tuberculosis service should be aware and to whom, in varying degrees, it should extend its educational, social, nursing, and medical services. However, in practice it is well known that the tuberculosis problem as actually

recognized is a different matter, as is indicated in the table. The first column represents the known cases on the assumption that 3 cases are known to exist for every annual death, the second column on the basis of 9 cases per death, which is more probably the true situation.

	ACTUALLY REPORTED	ESTIMATED TO EXIST
Active cases	120	360
Old, arrested or passive cases.....	120	360
Individuals exposed to close contact with active cases	360	1,080
Total.....	600	1,800

2. *Clinics:* What is the need for a tuberculosis clinic in a city of 50,000? The fact that 71 of the 86 cities have developed clinic services might be considered an answer to the question. But it would be profitable, perhaps, to outline what the effective use of a tuberculosis clinic in such a city would be. If it is assumed that the total number of active cases is about 360, of which only 120 are known to the health agencies, and further that about one-half of these are bedridden or under the care of private physicians or nurses, there will remain 60 patients eligible for clinic attendance. On this basis the following use of the clinic is suggested:

60 individuals averaging 8 visits.....	480 visits
360 contacts of 120 cases ($\frac{1}{2}$ visiting clinic twice).....	360 visits
160 individuals (non-tuberculous) examined at clinic....	360 visit
Total of 400 individuals making.....	1,200 visits

These 1,200 visits are equivalent to 23 examinations a week and would require two 2-hour clinics a week. This would be equivalent to 208 hours, and allowing for the nurse to arrive 15 minutes before the clinic opens would require 234 nurse hours. The desirability of having one of these clinics held in the evening or late afternoon would probably be indicated in most communities.

3. *Nursing Visits:* Many factors enter into any estimate of the number of visits that a nursing staff should endeavor to make in connection with its tuberculosis service. A few of these factors would be: the number of cases reported annually, which unfortunately seldom exceeds 2 to 4 times the number of annual deaths unless special efforts have been made; the economic status of the community, which may increase or decrease the necessity of frequent visiting; the community's provision for, and the public's attitude toward clinic and sanatorium

facilities; and, of course, the size of the nursing staff. It is, nevertheless, advantageous to consider what a reasonable nursing service should be in such a community as is under discussion.

The responsibility for practically all field work in connection with tuberculosis would fall upon the nurse. This means that as a definite part of her daily work the nurse would investigate all reported cases and their immediate family contacts, encourage continued medical supervision at the hands of a private physician or the clinic physician, and supply adequate nursing and social care for the patient, and, so far as is necessary, for the contacts.

What is a reasonable number of visits such a situation would require in the light of present standards? The following table suggests a basis for estimating this:

120 active cases receiving.....	10 visits	1,200
120 arrested or post-sanatoria cases receiving...	4 visits	480
120 contact families receiving.....	2 visits	240
Miscellaneous visits*.....		80
Total.....		2,000

* Miscellaneous visits include visits to suspected cases, investigations of deaths, employment calls, cooperative visits, welfare calls, visits to tuberculosis hospitals, visits to doctors' offices, collection of sputum specimens, etc.

It is again emphasized that the above estimates of the demands upon a tuberculosis nursing service are based upon a number of deliberate assumptions and represent only a service for less than one-third, or possibly one-quarter, of those existing, though unrecognized, tuberculosis cases in an average city of 50,000. The 2,000 visits a year represent nearly 40 visits a week, or a total of 2,016 nurse hours (60.5 minutes per visit) for the year, devoted specifically to tuberculosis, with 20 per cent of the field nursing visits made in behalf of post-sanatoria cases.

4. *Personnel*: It is assumed that the best available diagnostician of tuberculosis in the community can be prevailed upon to conduct two 2-hour clinics a week at a remuneration of \$10 a clinic, or \$1,000 a year. The clinic and nursing services as outlined would require at least 2,250 nurse hours.

5. *Hospitalization*: Sanatorium and hospital facilities for the care of tuberculosis cases are essential. Whether sanatorium beds are provided by the city, county or state, the standard recommended by the National Tuberculosis Association calls for about 1 bed for every annual death, or some 40 to 50 beds for a city of 50,000.

As the average duration of a patient's stay in a sanatorium is about 4 months, this would permit of 150 patients receiving sanatorium care if the beds were used to maximum capacity. It is more in accord with the facts to assume a 75 per cent utilization, or 112 patients per 50,000. Since tuberculosis hospitalization is so frequently a county or state concern, no special provision is made for it in the budget.

6. *Legislative Measures:* In order that tuberculosis may be effectively attacked, certain provisions must be given the sanction of law and the respect upon which depends their enforcement. These are: the prompt reporting of cases of the disease; the concurrent disinfection and disposal of sputum, and terminal disinfection involving cleaning or renovation of the premises after the removal or death of a patient; an anti-spitting ordinance; the segregation of careless tuberculous patients, and finally, regulations regarding tuberculin testing of dairy cows, proper pasteurization of milk, and other procedures which will protect the milk supply.

7. *Private Agencies:* At the present time and undoubtedly for some time to come, a considerable proportion of the efforts directed against tuberculosis will be found to be expended by private agencies. It was indeed the private agency that led in the promotion of the antituberculosis movement, and it is only during recent years that health departments have begun to assume at all energetically the direction of this, perhaps their largest single problem of disease prevention.

The private agency interested in tuberculosis may be a local or a county tuberculosis society; it may be the Visiting Nurses Association; occasionally it is an Employers' Tuberculosis Relief Association, or a part of a local public health association. Local conditions will determine what its most profitable activities will be.

While a private agency will always plan for the eventual adoption of its tuberculosis work by the health department, there will remain, after the major part of the tuberculosis program is taken over, a number of distinctive contributions which a private organization may continue to make. These are:

- a. The maintenance of public interest and financial support of the tuberculosis movement through the conduct of tuberculosis Christmas Seal sales.
- b. The support and even temporary management of special activities directed against tuberculosis, such as nutrition classes, mid-session school lunches, open air rooms, periodic weighing of school children, playground facilities, vacation camps, activities designed to promote health habits in children and the rehabilitation of post-sanatorium patients.

C. *Venereal Diseases*

The health department should take an active part in the guidance of the campaign against the venereal diseases, in coöperation with the state department of health and the medical society. The program for control of venereal diseases should include in its activities educational measures, recreational measures, protective social measures, law enforcement measures, and medical measures.

1. *Reporting*: There should be a law requiring notification to the local health department of all cases of venereal diseases. As in cases of other communicable diseases, one of the important objectives in requiring reporting is to give the community reasonable protection against the risk of contracting an infectious disease from afflicted patients, chiefly by insuring proper treatment and care, and prevention of spread through contact with others. In view of special problems involved, it is common practice in some states to permit reporting by number, and to withhold names and addresses, so long as patients remain under treatment and observe all precautions to prevent the exposure of others to infection. It must be frankly admitted that the present state of reporting is very poor. It has been observed by some investigators that not more than one-half of the new cases receive medical attention and that only about one-half of these cases are reported by doctors. If this be so, not more than one-fourth of the new cases get into the statistical records at the present time.

The size of the venereal disease problem in any community is a baffling one to determine. Estimates vary widely in a given community, while the differences which must be recognized to exist in different types of cities, are, of course, great. As an arbitrary figure 2.5 per cent of the population would seem to be a conservative estimate of the number needing medical treatment at any given time.

2. *Clinics*: Needless to say only a portion of these cases should be eligible for treatment at a public clinic. If 32 per cent of the 1,250 estimated to need treatment in a city of 50,000 attended the clinic the number would be 400. The number of clinic visits these patients would make is again a pure conjecture, for the widest extremes are found in this respect. Some clinics advise daily visits, others weekly. The treatments for syphilis and gonorrhea are markedly different in regard to frequency and continuance. The conscientious patient with regular treatments must be offset by the indifferent patient with infrequent visits or complete failure to return. Consequently any figure that is accepted as representing the average number of clinic visits per patient is only an estimate. If a conservative estimate of 10 visits per patient is adopted, the number of clinic visits for the 400 patients would be 4,000

a year. On such a basis a treatment clinic service, operated by a paid staff, consisting of a part-time physician, assisted by a nurse (351 hours) with a male nurse-attendant for evening clinics, should be provided to hold weekly, two afternoon and one evening sessions of 2 hours each. At each of the clinics held in the course of the year, some 25 patients undoubtedly could be treated.

The venereal disease clinic is established for the purpose of gaining control of carriers and thereby curbing the spread of disease, and also for the relief of suffering of individual patients. The function of the clinic is not fulfilled, therefore, when cases partially treated discontinue treatment only to report at some later period totally or permanently disabled and a burden upon the community.* To prevent this situation so far as possible, there are needed trained workers with broad social viewpoints who will be in position to understand the problems encountered, and to deal intelligently with patients and families as the need arises. It is also apparent that the medical profession likewise bears a definite responsibility for insuring adequate treatment of the large proportion of cases who will not be under the supervision of a public clinic.

3. *Nursing Visits:* In venereal disease infection, quite as much as in other types of communicable disease, the importance of interpreting and adapting the doctor's advice to conditions in the home, is obvious if effective preventive work is to be done. This is particularly important in families in which one of the members is infected. If one-half of the cases under treatment are of this character, and 3 visits are made by the nurse, 600 visits would be required, or 605 nurse hours (60.5 minutes per visit) for the year.

4. *Continuous Treatment Needed:* Provision should also be made for the examination of presumably infected persons and for the return, either to a public clinic or to private physicians for completion of treatment, of any cases that have been reported by physicians as having discontinued treatment before being rendered non-infectious. In some instances this will require suitable quarters for segregation of patients. Refractory cases refusing treatment probably should be handled by the health officer and his sanitary inspector, with the coöperation of the police department. Adequate legislation should be enacted, preferably based upon the model Vice Repressive Law prepared by the federal government and the American Social Hygiene Association.†

* Emphasized in survey reports of the American Social Hygiene Association, New York City.

† Adopted by the Interdepartmental Social Hygiene Board, 1919. Standard Form of Law for the Repression of Prostitution, Form No. 1, American Social Hygiene Association, New York City.

5. *Laboratory and Educational Aids:* Free public health laboratory service should be provided for the examination of specimens submitted by clinics, hospitals, and private physicians. The educational program should be sufficiently broad in its scope to deal not only with the dangers of venereal diseases, and the importance of early and thorough treatment, but also with constructive ideals and recreational measures. The social hygiene forces should coöperate with and, as far as possible, act through the various agencies that supplement the character building influences of the home, the church, and the school.

PERSONNEL AND BUDGET

To summarize the needs of the communicable disease control division it would seem that the following personnel (exclusive of nursing and hospitalization) is necessary for most effective work:

Salaries

1 physician, part-time, to aid health officer in consultation work, diagnostic service in doubtful cases, etc. (Major portion of his time as school physician)	\$500
1 physician, part-time for tuberculosis	1,000
1 physician, part-time for venereal disease	1,500
1 male attendant for venereal disease clinic	250
Maintenance and supplies (including tuberculosis and venereal disease clinics)	2,600
Transportation	400
Total	<hr/> \$6,250
<i>Per capita</i>	0.125

III. Division of Child Hygiene

Activities in the field of child hygiene have already achieved remarkable results, but in many localities should be extended along lines of sound administrative procedure for the welfare of mothers and of future generations. An adequate program for the protection of mothers and children reaches from care during pregnancy, at time of delivery and during convalescence, through infancy, preschool and school life. It obviously calls for knowledge of a considerable number of prospective mothers as early in pregnancy as is possible and the prompt reporting of all births and stillbirths.

A. Maternity Hygiene

1. *Clinics:* Of fundamental importance is the organization of prenatal clinics for the regular medical examination and hygienic advice of expectant mothers who will not normally employ a private physician

early in the course of pregnancy. The number of such clinics, and their location will depend largely upon the type of community. On the assumption that 1,200 births will occur annually in a city of 50,000, and that 20 per cent of the pregnant women will be registered at the clinic, there would be 240 registrants. If these visit the clinic monthly during the last 5 months of pregnancy, and make one postnatal visit, the total of 6 visits for the 240 patients would amount to 1,440 visits. Many of these visits would be very brief; however, several women would come to each clinic for a thorough time-consuming examination. It is believed that one weekly 2-hour clinic (104 clinic hours in a year), and one additional semi-monthly clinic should meet the needs as outlined.

The clinic should be located within easy reach of the people it aims to serve, and might, therefore, call for two or more clinic centers with sessions on alternate weeks. To hold the clinic, an obstetrician should be engaged and fairly remunerated. A physician and nurse should always be in attendance at the clinic, while nursing follow-up in the home is also essential. Arrangements should be made, either with the existing dental clinic or with local dentists, whereby the patients can secure the necessary dental care with the least inconvenience.

2. Nursing Service: The nursing service in connection with the clinic would require only a small fraction (175 hours) of the nurse's time. The home nursing service, however, would consume the balance of the nurse's time if it is assumed that 25 per cent of the pregnant women receive home visits averaging 6 in number. The 6 visits to the 300 patients would require 1,800 visits per year or 1,815 nurse hours (60.5 minutes per visit).

3. Care at Time of Delivery: Emphasis should be given to the importance of provision for obstetrical care for a certain proportion of the deliveries either through adequate hospitalization or through outpatient obstetrical medical and nursing service. There is urgent need for improvement in technic at the time of delivery comparable with recent advances in prenatal and postnatal care. The time has come when we may expect from 25 to 40 per cent of deliveries to be made in hospitals, and a few cities already have even more than this. The obstetrical work of some of the nursing organizations, in families where home deliveries occur, has proved of incalculable value, and there is much still to be learned of the ultimate practical advantages of delivery in the home as compared with hospitalization. Although it may be said in general that deliveries by midwives have decreased somewhat in recent years, it must be recognized that a fairly large percentage of babies (for the 38 cities of the 86 reporting, the per cent varies from 3 to 52, averaging 17 per cent) are still delivered by them. It is there-

fore essential that this service be safeguarded as fully as possible through the licensing and supervision of midwives, a matter to which the health officer and his director of nursing should give their attention. Provision should also be made for free distribution and routine administration of silver nitrate to the eyes of the new-born infant.

The amount of nursing care at the time of delivery that an average community should need may be estimated after deducting the number of deliveries that occur in hospitals, the number attended by midwives, and the number with private nursing care at home. The number of deliveries occurring in hospitals and the number attended by midwives varies from 8 to 78 per cent of the total births, the average of the 32 cities reporting being 48 per cent. If one-half the remaining number are considered to be without nursing care other than that offered by the public health nurse, it would appear that about 300 should be provided for. As the average duration of the nurse's visit at a delivery is 5 hours, the total time required for the 300 deliveries would be 1,500 nurse hours.

4. *Postnatal Care:* The care of the mother and her baby after birth should naturally follow upon the medical and nursing care received at the time of delivery. Not only should the 300 deliveries receive postpartum home nursing care but the mother should be urged to return to the clinic for postpartum examination and advice. From the standpoint of the best nursing standards as advocated by the Maternity Center Association of New York, each case should receive at least 5 daily visits and approximately 5 visits within the following 6 weeks. If this standard were only partially met, say 6 visits per case, this would mean a total of 1,800 visits to the 300 cases, which would consume about 2,445 nurse hours. This time is estimated on the basis of 91.5 minutes being allowed for each visit and duties connected therewith.

PERSONNEL

To summarize the personnel requirements of the maternity service: *

1 obstetrician for clinic (240 patients)

Nursing service, 300 prenatal cases, 1,990 hours

Nursing service, 300 delivery cases and midwife supervision, 2,000 hours

Nursing service, 300 postpartum cases, 2,445 hours.

B. *Infant Hygiene*

The problem of health service for the child after birth divides itself naturally into three phases: infant, preschool and school hygiene.

* Nurse hour calculations are based upon the experience of the National Organization for Public Health Nursing, and the East Harlem Nursing and Health Demonstration.

1. *Clinics*: A broad program of infant care embodies a system of infant welfare clinics for regular medical examination and hygienic supervision. These clinics may be located in a health center building, in school buildings or in settlement houses, for example, but as in the case of prenatal clinics, should be so situated that they will be accessible to the families needing this service. The extent of the infant welfare service must again be estimated on the basis of certain deliberate assumptions. Present standards of health department practice, based on actual accomplishment, call for at least 2,500 visits to clinic made by infants under 1 year of age per 1,000 live births. If it be assumed that 1,200 live births occur during the year it may be calculated that 3,000 visits should be made in a city of this size. An average clinic attendance of 25 infants, 10 of whom would be seen by the doctor would necessitate 120 sessions of 2 hours each, or about 2 conference periods a week, with a total of possibly 16 extra sessions during the summer for infants under 1 year of age. It is desirable that the nurse in attendance arrive 15 minutes before the clinic opens and be assisted at each clinic by 1 or 2 well trained volunteer helpers.

2. *Nursing Visits*: Visits to the clinic should be followed by home visitations by nurses to see that instructions are understood by the mother and are actually carried out under home conditions. There are always, too, a certain number of babies who for one reason or another do not come to clinic but need special attention which may be given by the nurse in her home visits, and by the pediatrician in emergency cases. The extent of home visiting which the children of this age group should receive is a still more controversial question.

Present standards indicate that at least 4,000 visits per 1,000 live births should be made in behalf of infants under 1 year of age. This would call for 4,800 visits which would consume approximately 4,120 nurse hours, if it be assumed that each visit requires on the average 51.5 minutes of the nurse's time. If, on the other hand, all mothers of newborn infants are visited once for delivery of the birth certificate and for giving such suggestions as seem indicated, as the importance of returning to their physician for postpartum examination, the value of breast feeding, and the value of regular medical supervision, 1,200 visits would be required. If in addition, one-half of the infants receive 10 visits a year, a total of 7,200 visits would be required. To make these visits and to do the necessary office and conference work associated with the visits, would consume 6,013 nurse hours, but a more adequate service would of course be assured than in the previous calculation where only a minimum of service is suggested.

3. *Educational Efforts:* Coupled with these organized efforts for medical and nursing care should be a concerted attempt toward education in matters of personal hygiene, with special emphasis on infant hygiene. This may include special courses for the girls in the higher grades of school, organization of little mothers' leagues, and other similar activities, in addition to special conferences designed primarily for mothers and expectant mothers for discussion of problems of nutrition, dental hygiene, and allied topics.

PERSONNEL

The total personnel needed for the infant welfare service would be:

- 1 or 2 part-time physicians
- Nursing service, 4,360 hours
- Trained volunteer helpers

C. *Preschool Hygiene*

It is likewise desirable, in the case of the child from 1 to 5 years of age, to consider the public health problem which he presents.

It has come to be recognized that the child should not be dropped from sight or attention as soon as he passes his second birthday. In the 4-year interim between his supervision as an infant and his entrance to school, during which time he is likely to find himself ousted from the limelight of attention by a new arrival in the family, he is either growing normally in wisdom and stature or he is developing a multitude of defects, related to the eyes, ears, nose, mouth, teeth, bones, speech, intelligence or nutrition. Unless these are detected and corrected he will begin his school career a handicapped child. Consequently, not only clinics which give special attention to this child's perfection or deficiency of growth, and to questions of nutrition, habits and behavior, but also home supervision by nurses and specialized workers should be provided for those who could not and in some instances would not avail themselves of the advice of a private physician.

1. *Clinics:* It must be assumed that the preschool clinic will be limited, except in the unusual city, to a relatively small proportion of the children and that the health officer will use it primarily as a demonstration to the private physicians and to the parents of the importance of their providing proper medical supervision. All children under the supervision of clinics or nurses should be kept on the records until they enter school and come under the care of the school physicians. It may be estimated that there should be a minimum of 600 visits to conference per 100,000 total population, or 300 visits in a city of this size. This would require the part-time service of a physician assisted by a nurse

and a well-trained volunteer worker for one 2-hour clinic twice a month, or the equivalent, as in those cities where both babies and preschool children are received in the same clinic.

2. *Nurses' Visits:* The nurses' visits to the homes of preschool children should attempt, no doubt, to cover a larger number than that in the above calculation, the purpose being not only to urge the parent to have the child examined by the private physicians interested in health, but to interpret the doctor's advice in relation to family and home conditions and to teach the mother. If 225 visits per 1,000 preschool population are made, the number of nursing visits would be 1,180 visits, consuming 934 nurse hours (47.5 minutes per visit). Baby boarding homes should be licensed by the city or state, and should be regularly inspected by nurses or other qualified persons. The immunization of preschool children in institutions and day nurseries is a problem of considerable importance in this connection which may well receive the coöperation of the health department.

PERSONNEL

The following is a summary of the personnel requirements of the preschool service:

- 1 physician (part-time)
- Nursing service, 982 hours
- 1 or 2 volunteer workers

D. *School Hygiene*

School health supervision has become recognized as an important part of the school and public health program. There are fundamental reasons why a city or state should assume the responsibility for the conservation of the health of the children in its public schools. When a community makes education compulsory, it must assume the responsibility for providing a healthful environment for the children. It is important to educate the child in the principles of healthful living so that he may himself have sound health and thus safeguard the community in the future. Furthermore, it is essential to find out and correct physical and mental defects in the child before they affect his ability to learn and interfere with his school career. From the standpoint of economy, education, and hygiene, it is believed that every effort should be exercised to create health conditions which give every child a fair chance and enable him to get the most out of the years he must spend at school.

PURPOSES

The primary purposes of school health supervision are five-fold. In order of their historic development they are: (a) to protect the community from the spread of communicable disease; (b) to insure sanitary conditions at the school plant; (c) to discover early and to correct physical and mental defects; (d) to provide systematic physical education; and (e) to educate the child in the principles of healthy living. Broadly speaking, for economy of service and simplicity of organization, health supervision should be exercised through one administrative department. Whether this be the health department or the department of education is of less importance than the assurance that the work is done effectively. It seems fair to suggest, however, that the health training of children in the public schools should be under the board of education, although some of the facts and some of the points of view may well be presented on the basis of information received from the health department.*

1. *Communicable Disease Control:* A complete system of school health supervision calls first of all for the daily inspection of children for discovery of evidence of communicable disease or obvious physical handicap. Suspected cases may be discovered by the teacher, or by the nurse, through rapid classroom inspections, and referred directly to a physician. All children reported by the teacher, the parent or the attendance officer, as having been absent more than 2 or 3 days on account of illness should be visited by the school nurse, and a certificate, signed by the medical inspector, board of health, or nurse, should be required before re-admission. The importance of immunization of school children, as well as of preschool children, against diphtheria and smallpox especially, has already been emphasized in a previous section.

2. *Sanitation of School Buildings:* Attention should be given to the sanitation and hygiene of school buildings, grounds and equipment. Measures for proper lighting, heating and ventilation should be enforced and the temperature of the schoolroom maintained between 65° and 68° F. Consideration should be given to room cleanliness, seating of pupils, care of outer clothing, the proper functioning of "sanitary" drinking fountains, and provision for adequate toilet and washroom facilities.

3. *Physical Examinations:* One of the most important functions of school health supervision is the physical examination of children for the discovery of physical defects. These examinations should be made by physicians assisted by nurses. It is believed that for a complete,

* Emphasized by Haven Emerson, M.D., Columbia University, New York City.

thorough physical examination by a physician, including heart and lungs, at least 15 minutes will be required.*

This examination is primarily an educational experience for parent, teacher, nurse and child. It is most desirable that the parents be present, and this will usually provide the first opportunity for the parent to understand the nature and significance of a health examination as conducted by an interested and well-trained pediatricist. It should reveal the physician to the child in the new rôle of an understanding friend, and the child to the physician as a distinctive personality requiring his best wisdom and understanding to comprehend and advise. Teacher and nurse should add their knowledge of the child, and in turn profit by the physician's advice regarding the child. In fact, if this examination is to have the far-reaching and lasting effects which are intended and the common understanding of parent, child, nurse, teacher and physician is to be attained, the following relations and attitudes must be assumed:

- a. An understanding, sympathetic attitude on the part of the examining physician, as a medical adviser and educator, having in mind the child from all angles of its development, mental and physical, its habits, and its reaction to its environment.

- b. The development of an attitude of friendliness and confidence toward the physician on the part of the *child*, obtained through the physician's tactful approach, understanding of child psychology and real interest in the individual child.

- c. The imparting by a *parent* to the physician of the intimate personal information regarding the child's condition and habits, such as is essential before the physician can understand the home environment of the child and give individualized advice.

- d. The detailed explanation to the parent, teacher, nurse, and child of the *individual advice* regarding the child's condition and habits.

- e. In so far as administratively practicable, the *teacher* should be present at the examination to add still greater significance to it, to help interpret the child to the physician and to benefit by the first-hand advice of the physician regarding the child.

* It appears from the analysis of the school medical inspection in the 86 cities from 40,000 to 70,000 that the practice which is almost universal is a rapid physical examination conducted by the physician for the purpose of detecting physical defects. The average rate of examination based upon 62 cities where such information was obtainable was 18 an hour, with a maximum of 90 and a minimum of 2. In only 9 of the cities was it the regular practice to remove the clothing to the waist. In but 14 instances was a definite effort made to have the parents present at the physical examination. However, one city reported 95 per cent of the parents to be present and another about 50 per cent. Assuming this picture to be representative, it is evident that the result is the detection of only the most apparent physical defects. While recognizing that even so coarse a method of screening is not without some value, the development of the thorough health examination with educational emphasis has revealed the limitation and inadequacy of the screening method as the only routine medical service.

f. The *nurse* in addition to arranging for these examinations under the physician's direction should invariably be present (1) to help interpret the home environment to him; (2) to gain first-hand knowledge of the doctor's findings and advice in order to do more intelligent teaching in the home; (3) to conduct certain phases of the examinations; (4) to assist child, mother, and doctor to share with the teacher the responsibility for the record of the doctor's findings and advice.

Although the widest variety of procedures are actually in vogue with respect to the physical examination, for purposes of simplicity there may be recognized three fairly distinct types.* The first situation recognizes the more careful examination by a school physician, either as a routine matter for a special group of children such as the entering class, or else reserved for those children who are specially referred to the physician by nurse or teacher because of actions or habits which have come to their attention. This latter plan frankly recognizes the practical impossibility of careful examinations with history taking and parents present for all school children annually, and the preference for careful work being accorded the few showing need rather than the hasty inspection without history for many.

The second type of procedure may be found in a school system which has a medical staff and for various reasons the program calls for a somewhat rapid inspection of children several times during their school career. Three such routine inspections during the first 9 years of school would seem to be sufficient under this program as the annual inspection by the physician of every child is very apt to develop into a machine-like procedure with the time for inspection so reduced as to raise doubt as to its value.

In practice, the third type of procedure is often found, but is not recommended, where facilities may be secured for one of the first two types of procedure. This third plan is found in communities where no regular personnel is available for the school work. A simple health record of each child is kept by the teacher who notes such items as the age when certain communicable diseases occurred and other pertinent facts concerning the child according to the evidences which appear to indicate a physical defect such as eyestrain, inability to hear, frequent colds, etc.

4. *Records:* Careful records concerning each child's physical condition, including the results of examinations and corrections made, should be kept on file in the school office. It should be emphasized that

*Suggested by G. T. Palmer, Dr.P.H., Director of Research, A.C.H.A.

a uniform terminology for defects and a standardized method for checking and recording corrections should be employed.*

The thorough health examination by its very nature is time consuming, and practical consideration would limit its frequency to twice or three times during the school career, preferably as early as possible. In the case where intensive preschool work has occurred and the children enter school unusually free from physical defects, it may be preferable to postpone the examination until the second or third year.

5. *Clinics and Health Classes:* Where no other community facilities exist, school clinics should be maintained for the correction of defects which would not otherwise be remedied. Dental clinics are particularly important and provision is made for them in the budget. These clinics in so far as possible should be organized in close coöperation with the local dental society. Attention should be given to special classes for handicapped children particularly for visual and mental defectives and for children suffering from faulty posture and undernourishment. Another feature of value is the organization of special classes in industrial arts, cooking, home economics, and home nursing, which have so definite a bearing on the preparation for intelligent home making.

Consideration should be given to the hygienic arrangement of the daily program to provide for a suitable alternation of study with manual work or play, of small muscle movements with large, of activity with rest, of indoor with outdoor activities.

6. *Physical Education:* Systematic physical education is regarded as a health promoting activity and should be included in a balanced program of health supervision under a qualified physical director. Each boy and girl should have normal physical activity sufficient in amount for growth and development, and in kind, appropriate to age, ability and sex. The course of instruction should give recognition to the mental and physiological age of the pupils and to native tendencies that appear in the well-defined growth periods of childhood.†

7. *Health Education:* Health training and instruction should be developed in a manner to interest the pupils and to maintain a proper balance between sound, basic instruction and the stimulation of habit formation. Special course work should be correlated so far as possible

* It would be well for cities to keep in touch with a committee of the American Public Health Association which is endeavoring to promote uniform standards in this work. Also see Report on School Record Forms submitted to Committee on Administrative Practice of the A.P.H.A.

† See the course as outlined in the Connecticut School Health Program of the State Board of Education.

with other classroom instruction and with seasonal events, such as safety week and national child health day. The aim should be to teach the child to think in terms of positive health, thereby establishing a hygienic conscience which is so essential in health building for the future.

8. *Personnel:* Coupled with activities in the school should be well directed efforts for home follow-up by nurses to insure an understanding of the child in relation to his environment and the interpretation to the family of the physician's advice and its adaptation to the family environment, as well as a stimulus to the formation of good health habits and the help necessary in arranging for the correction of defects. In a city of this size, assuming approximately 8,000 grade school children, and arbitrarily accepting 2,000 to 2,500 children as the maximum number that can be supervised by one nurse, there will be needed nursing service equivalent to the time of 4 nurses. This standard is already attained in 20 of the 86 cities. One full-time physician, who devotes a fraction of his time to consultative work in communicable disease control as outlined on page 60, will also be necessary, in addition to 1 dentist and 1 dental hygienist.

DIRECTION

As pointed out in the program for an ideal health department for a city of 100,000 population, there are strong logical reasons for allying such work with the department of health on the one hand and with the department of education on the other. It is natural that the educator should maintain that work with the school child is within his province. The teaching of hygiene should form such an important part of the curriculum as to permeate, consciously or unconsciously, the various courses not directly labelled physiology or science, while work in physical education is also intimately associated with the activities of the department of education.

On the other hand, as all this work consists in health promotion and disease prevention, the health officer may properly consider it his responsibility. In any event, it is important that there should be a unified health program reaching all classes and all age groups, with close correlation of the work of school physicians, nurses, dentists, and teachers in the official health program. One of the most important factors in the success or failure of a plan of this character will be the type of personnel selected, for largely upon the initiative and training of the physicians, nurses and others will depend its effectiveness.* An

* Lonsdale J. Roper, M.D., Director, Department of Public Welfare, Portsmouth, Va., American Health Congress, Atlantic City, May, 1926.

effective plan must also be sufficiently broad in scope to provide for necessary supervision of children in private and parochial as well as in public schools, and must include teachers as well as pupils.

PERSONNEL AND BUDGET

In accordance with the child hygiene program thus planned, assuming that the department of health is to be charged with school health work, there will be needed the following personnel (aside from nursing) and budget:

Salaries

1 school physician (about $\frac{7}{8}$ time to school, $\frac{1}{8}$ time to communicable disease control).....	\$3,500
1 obstetrician, 1 weekly and 1 semi-monthly clinic.....	750
1 pediatrician, 3 weekly clinics.....	1,000
1 pediatrician, 3 weekly clinics.....	1,000
1 dentist.....	2,500
1 dental hygienist.....	1,000
1 clerk-typist.....	1,200
Transportation.....	400
Maintenance and supplies.....	1,200
Total.....	\$12,550
<i>Per capita.....</i>	<i>0.251</i>

IV. Division of Public Health Nursing

Need of Service: Public health nursing has developed rapidly during the past fifty years and has made important contributions to human needs and human happiness by ministering to the sick in their homes, and, more recently, by well directed efforts toward teaching the prevention of disease and the promotion of health in connection with that care. Community nursing has come to be recognized not as an expense but as an investment which pays large dividends in the saving of human lives and the prevention of suffering. It has been well said that no community can afford *not* to spend the money for this home missionary of health.

Gradual Development Essential: It must be recognized at once, however, that the development of public health nursing is still comparatively recent and few communities appreciate the full value of a complete nursing service.* It would be unwise, of course, to recommend too rapid a development of this service. The service in any given community should be increased only as the health authorities and the people

*None of the 86 cities, according to the records for 1923, has, all told, more than 17 full-time public health nurses per 50,000 population, and 61 have less than 10 nurses per 50,000.

of that community recognize the need for and demand more service than the existing facilities can give. Too much emphasis can hardly be put upon the desirability and necessity for gradual normal expansion from any existing public health nursing service toward one which will more nearly meet the whole need of the community.

Although the detailed functions of the nursing division have been discussed under the different health department divisions served, it seems desirable to summarize here the outstanding features of a public health program:

1. The visitation in their homes of cases of communicable disease for the purpose of acquiring information of epidemiological importance, and of giving instruction in the principles of isolation and concurrent disinfection, as well as for the taking of cultures and preliminary inspection of contacts.

2. The assistance of physicians at tuberculosis clinics, and the visitation in their homes of cases of tuberculosis, of contacts, and of post-sanatorium or arrested cases, for bringing contacts and suspicious cases to clinics and for instruction of patients.

3. The assistance of physicians at venereal disease clinics; and the visitation in their homes of cases needing follow-up or advice, and for bringing other members of the family to clinic.

4. The assistance of physicians in prenatal clinics, at time of delivery when needed, in infant welfare and preschool child clinics; and the visitation in their homes of mothers, expectant mothers, and infants carried on the clinic registers, and others who for one reason or another, will not come to clinics but need special care or instruction.

5. The assistance of school physicians in the examination and supervision of school children; and the visitation in homes to secure needed treatments and to instruct mothers and children in the hygiene of childhood.

Coördination of Nursing Work: In view of the rapid development during recent years of different public health problems which require nursing care, it is not surprising to find a variety of plans and of agencies for supplying this service. The various methods of providing nursing service have been extensively studied from the standpoint of the individual agencies and of the community as a whole. The difficulty of selecting any single plan to meet all situations is apparent. At the same time it has become realized that coördination of activities is essential for economy and effectiveness of service. There is urgently needed a constructive program, adaptable to different community situations, whereby this coördination and centralization of supervision may be secured. It seems practicable to suggest a consideration of the possi-

bility of the development of a joint committee of representatives of each agency and of the general public, responsible for coördinating the nursing activities. It also seems desirable to emphasize the need for the health department to have a definite responsibility in connection with the administration of a service so essential to the discharge of its various responsibilities as is public health nursing.

In attempting to formulate a general plan of securing most effective results from community health nursing, two closely related tendencies should be borne in mind. Reference has already been made to one of these tendencies, centralization, which is the outgrowth of efforts to avoid duplication and unnecessary overhead expenses, and to meet community problems as a whole rather than in sections. There has likewise developed a gradual tendency toward generalization of activities, as contrasted with specialization.

In many different places where efforts have been made to provide a public health nursing service for a given area or community the plan of assigning a nurse to a district to do all the public health nursing done by one agency or all agencies in that district has proved effective. There are still some, it is true, who feel that assigning specially prepared nurses to each phase of the work may be more effective, though necessarily more expensive.

The chief advantages of the specialized type of service over the generalized type may be met to a large extent, and should be met, through provision of adequate supervision in a generalized plan by nurses who have received specialized training in the particular type of nursing work in which they are to serve as supervisors.

The main advantages of generalized service are that it considers the problem of a district and of a family as a unit to be served by a single nurse, familiar with family conditions, rather than possibly by 5 or 6 different nurses, under a specialized plan; and it provides better service from an educational viewpoint, for it combines the care of the sick on a visiting nurse basis with the teaching of hygiene, thereby increasing the influence of the nurse who renders aid in time of suffering. This by no means bars participation in nursing programs by voluntary or any other agencies as will be indicated shortly.

According to modern conceptions, however, the ideal plan does include under one organization both the educational work performed by most health department nurses in the past and the care of the sick in the home as now performed by district or visiting nurses, usually under private auspices. The National Organization for Public Health Nursing, in a report following a study of visiting nursing in 1924, indicated that a visiting nurse becomes a public health nurse when, in addition to

the bedside nursing care of the individual who is ill, she gives instruction in right living to prevent communicable and other illness in the family group, and is on the alert to utilize every opportunity for educational work.

If the health department assumes responsibility for a part, although not all, of the nursing, then some plan might be devised for adjusting the division of work with the other agencies and for assuring a uniform quality for all public health nursing service. If the health department contracts with a voluntary agency for certain services, or subsidizes a voluntary agency to include certain activities in its program, it is well that the health department should have some definite connection with the administration of that service. This connection might be secured by membership on the board and committees of the voluntary agency, not only for the health officer but for some members of the staff of the health department.

Direction of Nursing: Because any other plan presents too many possibilities to discuss, and because of the demonstrated value of centralized supervision, consideration will be given to a method of supplying the nursing need in a community of 50,000 people by a staff working under the guidance of a single nurse director with nurse assistants for adequate supervision. This would be simple were one agency responsible for the complete public health nursing service. Where there are several agencies, each carrying the responsibility for a given phase of the service—

All might join in the support of one nurse director and assistants; or the health department might employ the director and her assistants, and the voluntary agencies (interpreting their services as supplementing the work of the health department) might recognize them as directors and supervisors of their services; or

a joint committee or council might employ a nurse director and assistants to coördinate the work of its constituent members.

Care of the Sick: Since any plan for a community public health nursing program must include the provision of visiting nurse care for those sick in their homes, the requirements of this service on a specialized basis may be considered here.

According to the various morbidity studies approximately 2 per cent of the population have been found to be ill at any given time. This includes maternity patients, who, although not ill, are incapacitated. In one city with a well-established public health nursing service offering nursing care to the sick in their homes, 7 per cent of the known sick were receiving visiting nurse care at the time the morbidity study was

made. Fifteen per cent of the 7 per cent were maternity patients. Since maternity nursing has been considered elsewhere, it will be eliminated from consideration in this section. On the basis of these figures, 59 persons out of 50,000 would be using the visiting nurse service each day for sickness care, if such a service were available. This would mean for 313 work days, 18,467 visits each year, or visits equivalent to a little more than 9 nurses' time.

It is clear that this is no theoretical estimate of those needing visiting nursing care for illness. Such an estimate would give a much larger figure. Based on the same morbidity studies it has been estimated that approximately 1 per cent of the population, or 500, would need visiting nursing care for illness each day.

Consequently, it would seem to be clear from this that the equivalent of 9 nurses' time is the minimum that could be considered adequate in developing a program for community nursing service for a population of 50,000.

Visit Fee: The nursing associations which include in their programs the bedside care of the sick have adopted a visit fee for this part of their work. This fee is usually based upon the cost of a visit, those able to pay being asked to pay the full cost and others paying such portion of the cost as they can. The annual reports of 12 organizations in cities of 25,000 to 100,000 population indicate that approximately 20 per cent of the cost of the care of the sick will be paid for by the patients or by organizations buying nursing service. This percentage ranged from 7 per cent to 38 per cent. It will always vary in different communities depending on the economic status of families served and the emphasis which is put upon the collection of fees. In only very few instances has any attempt been made to collect fees for such work as the health supervision work included in a child hygiene program. Since in this plan the 9 nurses for the care of the sick represent practically one-third of the field nursing staff, 20 per cent of one-third of the budget, or \$3,200, may be counted on as probable receipts in payment for service rendered. This would leave \$44,800 to be secured by appropriation of public moneys or voluntary contributions. On the basis of the proportion of nurses now employed by the health department in the 86 cities as compared with those employed by all other agencies, only 30 per cent of this budget would be attributed to the health department.

On a generalized basis, and under normal conditions, it has been indicated that nursing service approximately as following should be provided in a city of 50,000 inhabitants:

ESTIMATED AMOUNT OF CLINIC AND FIELD NURSING SERVICE REQUIRED FOR 10 PHASES OF HEALTH WORK

Type of service	Estimated number of individuals in each group	CLINIC SERVICE				FIELD NURSING SERVICE					Total nurse hours	Number nurses
		Per cent reached at clinic	Number reached at clinic	Number of visits to clinic	Number of 2-hour clinics per week	Nurse hours at clinic	Per cent reached by home visits	Number reached by home visits	Number visits to all patients	Number nurse hrs. for home visits		
Communicable disease	1200	..	...	....	1	117	100	1200	3600	3630	3747	1.9
Tuberculosis	1800	22	400	1200	2	234	33	600	2000	2016	2250	1.1
Venereal disease	1250	32	400	4000	3	351	16	200	600	605	956	0.5
Prenatal care	1200	20	240	1440	1½	175	25	300	1800	1815	1990	1.0
Delivery care	1200	..	...	....	..	...	25	300	300	1500	1500	0.8
Postnatal care	1200	..	...	....	..	...	25	300	1800	2445	2445	1.2
Infant care	1200	25	300	3000	2	240	..	...	4800	4120	4360	2.2
Preschool child care	5250	..	...	300	1*	48	25	...	1180	934	982	0.5
School child care (Grade)	8000	..	...	....	..	...	..	...	3200	2414	6033†	3.0
Bedside care of sick.	50000	..	...	....	..	...	..	...	18467	18621	18621	9.3
Total									37747	38100	42884	21.5

* Semi-monthly.

† Three-fifths of nurses' time spent in school and clinic work.

A staff of 13 nurses would thus seem adequate for the so-called preventive functions of public health nursing, while about 9 nurses would be needed in addition for bedside care. This would give a total of 22 nurses who should serve on the district or generalized basis. In addition, there would be needed at least 2 supervisors besides the chief of the bureau, each of whom should have a social service point of view, and be specially trained for her task as a nursing supervisor.

It has been customary to regard the length of time required for an average nursing visit and the duties connected therewith as 1 hour. In this plan, however, an effort has been made to indicate somewhat in detail the variation in time requirements for different types of nursing visits. This has been made possible as a result of the careful analyses made, in connection with the East Harlem Nursing and Health Demonstration in New York City, of the content, cost and length of a nursing visit in the home. Of course this study applies to a particular section of a large city and is influenced by the conditions of the locality and the type of service rendered. Upon further consideration, however, it is noted that the average length of time required for a nursing visit as shown by this study compares closely with the figures previously utilized in different sections of the country, the total number of minutes according to this report being 51.6 minutes. The data, therefore, have the special value of having been assembled and analyzed under carefully controlled conditions, and of indicating the relative cost and length of different types of home nursing visits. As the average figures check so closely with those previously cited, therefore, it would seem justifiable to utilize them throughout the present plan. It is hoped that similar data from other cities may be assembled for comparative purposes.

PERSONNEL AND BUDGET

As in the case of the plan for a city of 100,000 population, it is considered essential to the highest efficiency that all the nursing work of the department of health should be organized in a separate division and under the direction of a chief who is herself a nurse. For the administration of an organization of this size and character there is needed a well-trained public health nurse of administrative ability, and her salary should be commensurate with her qualification.

The qualifications now set up for staff nurses also require special training and considerable time spent in preparation for public health nursing positions, and with these increased standards must come increased salaries. The size of the budget would depend somewhat upon local conditions, but should be about as follows:

Salaries	Rate	Total
1 director	\$3,000	\$3,000
2 supervisors	1,800	3,600
22 staff nurses	1,600	35,200
1 clerk	1,200	1,200
1 clerk-typist	1,000	1,000
Maintenance		4,000
		<hr/>
Total		\$48,000
Less 20 per cent deductions for portion (one-third of total) of payments for care of sick		3,200
		<hr/>
Total		\$44,800
<i>Per capita</i>		0.896

Records and Reports: Adequate case records for each case carried and complete monthly reports of volume and character of work are essential for the comparison of the work accomplished with the known need of the community as disclosed by the census and vital statistic figures and the individual employment of nurses. The special clerk-typist serving this division should do as much as possible of this record and report work, leaving for the nurses only the actual case records made at the time of the visit and the daily summary of the visit and travel time.*

Education of Staff: Because health work in general and public health nursing in particular are still in the developmental stage in many respects, a program for continuous staff education is essential if the staff is to be kept intelligently informed of new discoveries and developments in the rules of healthful living and the prevention and care of disease. Such a program should include a definite plan for the introduction of new nurses to the work, reading and reporting on current pamphlet literature and new books, attendance at national and state meetings, visits to other health and welfare agencies in the community, regular weekly or semi-monthly staff conferences for the review of case records, the discussion of special problems, and the reports on required readings.

To secure a uniform quality of public health nursing for each patient regardless of which one of the nurses renders that service requires careful supervision, which should include daily contact by telephone or in person between the supervisors and the staff nurses for consultation on immediate problems, field and clinic visits in each nurse's district, and review by the supervisors of the active as well as the closed records

* The standard record forms developed by the National Organization for Public Health Nursing should prove helpful in securing uniform records.

and reports with free discussion with the nurses of the indications of good and poor work.

V. *Division of Inspection*

Administrative Responsibility: In a city of 50,000 it is possible that the inspection service may be carried on under the direct supervision of the health officer or that he may delegate the responsibility of routine management to his assistants, in order to gain additional time for important duties that otherwise are apt to be neglected for lack of time. It is suggested that the bacteriologist in charge of the laboratory may assume direct responsibility for the daily work of the milk and food inspectors. Such contact with the problems in the field is invaluable to the bacteriologist if the most intelligent use is to be made of the laboratory. The bacteriologist in daily reports to the health officer should keep him informed of the field problems and defer to his decision in regard to policies.

The sanitary inspector, likewise, should report daily to the health officer's assistant, to whom all requests and complaints would naturally come. These arrangements should not mean that the inspectors are to be isolated from the constant interest and advice of their health officer, but that a proper administrative relationship is to be established in order to promote the best interests of the department.

A. *Sanitation*

Sanitary inspection in the light of modern public health theory has come to be recognized as having far less health significance than it was believed to have had in the past. Among the practices of sanitary inspection which are now known to have minor or negligible health value may be mentioned:

Inspection of new plumbing installation; inspection of such nuisances as noise, unsightly litter of paper and rubbish, ashes, garbage, except on special complaint, keeping of domestic pets, untidy yard and cellars, vacant lots and dumps, and other conditions of physical environment, undesirable but scarcely dangerous to health.

Yet it is on such matters that the health department, because of public expectation and the force of tradition, has been compelled to expend a large proportion of the effort of its sanitary inspectors, whose services usually represent approximately one-sixth of the total health department budget. There can be no doubt that these may be unesthetic and highly undesirable, but it is contended that it is no more the function of the health department to concern itself with these matters than with the

control of traffic or fire hazards. It would be more advantageous to have the control of these conditions carried out by some other department of the city government, such as the police or engineering department.

There are certain conditions, however, which more directly bear upon the health of the community and may properly receive attention from the health department. Among such conditions may be mentioned the following:

- The elimination of privy vaults as rapidly as possible, and the proper maintenance of those which remain
- The control of fly breeding by supervision of manure storage and removal, and of other fly breeding conditions
- The elimination and control of mosquito breeding places
- The control of rat breeding in seaboard cities
- The control of atmospheric pollution

While these problems will not necessarily be found to exist singly or collectively in all cities, their presence calls for aggressive efforts which will produce measurable results. Activities should not be confined to the following up of complaints, but as far as time permits should involve constant search for conditions needing correction. Incidentally it may be mentioned that the use of a motorcycle will greatly facilitate the work. With this assistance such inspection service can largely be performed in the equivalent of one efficient inspector's time, except in cities where major problems of environmental sanitation still exist and modern public health work has only very recently been undertaken. Under somewhat normal conditions there may be expected 1,500 to 2,000 inspections in a city of this size during the year.

It is desirable that there should be a housing code, and that permits should be required for lodging houses and offensive trades of various types. Industrial hygiene is a very important activity, but is at present, in small cities, confined to activities of state departments and individual concerns. Records of complaints and inspections should be kept classified by street and number, and efforts should be directed toward securing voluntary compliance with orders with as few prosecutions as possible.

The work of the sanitary inspector should be concerned with far broader aspects than unsanitary conditions alone. If he is imbued with the proper health attitude and with real enthusiasm for his job, he cannot escape becoming one of the most effective health educators of the department. In his systematic house to house inspection he has an opportunity to acquire a comprehensive knowledge of all of the environmental conditions affecting the community, and a surprisingly valuable

understanding of individuals and of the social problems of the community. A constant personal contact between the sanitary inspector and the public health nurse will also be found mutually advantageous, and will greatly assist the sanitary inspector in carrying out his fundamental duty of education in matters of health and sanitation.

B. *Milk*

It would seem that there are two essential features to be considered in an adequate control of the public milk supply; first, the securing of a high grade raw product; and second, the proper handling of the same to protect the public from dangers of milk-borne diseases. The meeting of either of these requirements alone is not sufficient, for although pasteurization is the one safeguard, it is not a panacea, and it cannot make an ideal food for babies of unclean milk, kept in an unhealthy environment; nor yet will the most thorough-going inspection of the farms prevent the occasional infection of a raw milk supply with the germs of one of the communicable diseases. The following elements are therefore recommended, and require for satisfactory execution the full time of a trained milk inspector and an assistant * whose time might be divided between milk and sanitary inspection:

1. An ordinance requiring the licensing of all milk dealers and distributors within the city.

2. Regulations defining pasteurization and requiring the pasteurization of all milk not certified by an authorized medical milk commission.

3. The inspection of milk producing farms at least twice a year at milking time, recording findings on a standard score card.

4. The control of the pasteurization process and the handling and bottling of milk within all plants, by weekly inspection, by laboratory analyses, and by continuous temperature records by recording thermometers. (The accuracy of these recording thermometers should be checked at intervals against similar instruments tested by the Bureau of Standards.)

5. The establishment and enforcement of temperature standards for milk in transit and held for sale.

6. The collection of milk samples from all distributors—stores, wagons, shipping stations and plants—at frequent intervals for chemical, physical and bacteriological analysis.

7. The provision by regulation that all cattle producing milk to be sold raw shall be tuberculin tested regularly, with prompt removal of reacting animals.

* Suggested by F. J. Osborne, Health Officer, East Orange, N. J., American Health Congress, Atlantic City, May, 1926.

8. The provision by ordinance that all bottled milk shall be plainly marked to show the name of the producer or distributor, the grade, and the date of production or pasteurization.

9. The provision for medical examination of all handlers of milk to be sold raw, and all handlers of milk after its pasteurization.

10. The assembling of all persons engaged in the handling of milk, by the health officer, at least once a year for the purpose of giving graphic practical instruction in the importance of personal habits in the protection of milk.

Producers should be systematically instructed* in modern methods of milk production, through letters, pamphlets and personal contact with inspectors.

C. Foods

The importance of properly cleaned eating and drinking utensils is unquestioned. Likewise, health as well as decency requires that the public be assured that its perishable foods, such as fruits and vegetables, meat, fish, fowl and shell foods, should be delivered to the consumer in a wholesome and edible condition. To insure prompt and adequate protection of the food supply, the following procedures are required:

1. An ordinance requiring that all premises where food is prepared, sold, or held previous to sale, must obtain a license before being permitted to operate, with provision that such license shall not be granted until an inspection of the premises has been made by the department of health and the conditions found satisfactory. Regulations empowering the health officer to condemn and destroy foods considered to be unfit for human consumption.

2. The regular inspection and scoring of all such establishments on the basis of equipment and methods, with the publication of these scores at intervals.

3. The medical examination, preferably by the health department on a fee basis, at regular intervals of all persons handling food for public consumption. The practical value of this work has not been demonstrated, but the practice has become general and the possible educational advantages seem worthy of consideration.

4. The maintenance of a public abattoir for local slaughtering and the exclusion from the city of all meat not inspected either at this abattoir or elsewhere under the federal law. (If effectively operated, free from political interference, such provision is of considerable value.)

* Suggested by William DeKleine, M.D., Director, Fargo Child Health Demonstration.

For executing this program of food control the services of one inspector will be required. The number of inspections and reinspections of food handling establishments, according to present standards, would be about 2,000.

PERSONNEL AND BUDGET

A reasonable requirement of this inspection service would then be the following personnel and budget:

Salaries	
Milk inspector	\$2,000
Food inspector	1,800
Sanitary inspector	1,800
Assistant inspector	1,500
Transportation* and printing.....	500
<hr/>	
Total	\$7,600
<i>Per capita</i>	0.152

* This covers the expense of two automobiles. No allowance is made for the original cost of the cars.

VI. *Division of Laboratories*

If the health work of the modern city is to function efficiently, if the control of the water and milk supply and of communicable disease is to be based upon facts rather than personal opinion, and if the clinical service is to put into practice for its patients all of our present-day knowledge of disease prevention, there must be available a public health laboratory doing work of such high character and broad scope that all workers in this field will instinctively seek its guidance and advice. This has for some time been recognized by the larger cities and not a few valuable contributions to public health are the results of the painstaking and patient effort of the laboratory worker.

Such a laboratory will be an important factor in stimulating friendly relations between the physicians and the health department by providing an expeditious and careful diagnostic service. Furthermore, by establishing a relationship with the milk producers on a high professional plane noted for its fairness and accuracy, it will assist materially in building up the interest of the producers in the control of the milk supply.

Though the laboratory is recognized as indispensable by the large cities, its benefits are no less real in the city of 50,000. When the low cost of such a service is considered it will be at once apparent that the department of health may, for a small amount, develop a strong bond between the citizenry and itself.

Scope: The proper scope of this work is a matter to be decided in each community. If the laboratory of the state board of health is situated in the city the local laboratory may not be needed at all or only to a limited degree. In a number of the 86 cities visited in the survey, private laboratories existed doing pathological, bacteriological and chemical analyses. In some instances these were entirely private enterprises, in others they were a part of a hospital service. In planning a service under an official agency, due consideration should be given to the services being rendered by the private or hospital laboratory to secure a complete covering of the field without duplication. There are, to be sure, certain items of service which are concerned more with the health of the individual than with the public. The plan of rendering these services for a definite fee is not incompatible with the policies adopted in some other branches of health administration. Cities are providing hospital beds for tuberculosis and communicable diseases and collecting a reasonable fee from those who are able to pay. It becomes then a matter of making the necessary laboratory service available, either under an official or private agency or both, and of rendering those services free which are essential to the protection of the public health and welfare, and possibly making a charge for other services.

The bacteriologist-chemist should be a person well trained in modern methods of disease diagnosis, and milk and water analysis, and should be assisted by a part-time helper.

The laboratory should be prepared to render the following services:

1. Examination of:

- a. Cultures for diagnosis, release and for carriers of diphtheria
- b. Specimens for determination of open or infectious cases of tuberculosis
- c. Widal agglutination, blood cultures, stool and urine specimens for typhoid and paratyphoid
- d. Smears for gonococci
- e. Smears for *Spirocheta pallida*
- f. Blood for *Plasmodium* of malaria
- g. Urinalysis for health department clinic (not routine for all physicians)
- h. Physical, bacteriological and chemical analyses of milk and ice cream
- i. Bacteriological and chemical analyses of water from both public and private sources
- j. Intestinal parasites, in certain instances
- k. Specimens for pneumococcus typing and for meningococcus examination in special cases

In certain local situations it may seem wise to examine blood specimens by the Wassermann reaction in the local laboratory, but the variety of special apparatus and reagents required is such, and the time consumed in making one examination so nearly that of making twenty, that it is only advisable when there are a great many blood specimens to be exam-

ined. If this work is to be undertaken, provision should be made for additional staff and maintenance. The local laboratory should, if the samples are to be sent elsewhere, be prepared to receive the blood specimens and separate the serum.

2. Keeping in stock the following biological products freely available to physicians and for distribution by the division of communicable diseases:

- a. Diphtheria antitoxin and toxin-antitoxin doses
- b. Typhoid and paratyphoid vaccines
- c. Smallpox vaccine
- d. Antitetanic serum
- e. Standardized material for Schick testing
- f. Scarlet fever prophylactic or curative biological

3. Preparation and free distribution of containers and materials for specimens and cultures.

4. Encouragement of research problems outside of routine work.

5. Provision for the receipt and incubation of diphtheria cultures submitted after laboratory hours.

The service which we may expect from a well-organized laboratory is about 100 examinations of specimens of all kinds per 1,000 population annually, at a cost per specimen of about 40 cents.

PERSONNEL AND BUDGET

The staff and budget should be approximately as follows:

Salaries

1 bacteriologist-chemist	\$2,500
1 helper (part time).....	600
Maintenance and supplies	1,000
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Total.....	\$4,100
<i>Per capita</i>	0.082

HEALTH DEPARTMENT BUDGET

In order to formulate a well-rounded public health program, the plan which has been outlined in the preceding pages has been developed on the assumption that all primary and essential health activities are performed by the department of health. It is realized that such a situation does not exist at the present time in cities of 50,000 population, for much of the work is handled by voluntary or other official agencies, as for instance, the nursing associations and the departments of education. It has consequently been emphasized that while this plan includes what is needed in a modern public health program in the average city, the various details must be adapted to local conditions in any practical

application. If the major portion of nursing work, for example, is carried on by an unofficial visiting nurse organization, deductions should accordingly be made in the organization and budget of the department of health as outlined here. But approximately the personnel and funds indicated in the next table should be supplied by some organization or group of organizations for disease prevention and health promotion.

RECAPITULATION OF HEALTH DEPARTMENT BUDGET

Service	Salaries	Maintenance	Total	Cents Per Capita :
I. Administration, education and records (including vital statistics).....	\$8,200	\$2,500	\$10,700	21.4
II. Communicable disease control (including tuberculosis and venereal diseases).....	3,250	3,000	6,250	12.5
III. Child hygiene (including maternity, infant, preschool and school)	10,950	1,600	12,550	25.1
IV. Public health nursing (including bedside nursing)...	44,000	4,000	48,000	96.0
V. Inspection.....	7,100	500	7,600	15.2
VI. Laboratories.....	3,100	1,000	4,100	8.2
Total (without hospitalization).....	\$76,600	\$12,600	\$89,200	178.4
Hospitalization of communicable diseases		5,000	5,000	10.0
Grand Total	\$76,600	\$17,600	\$94,200	188.4
Less income from nursing service.....			3,200	6.4
Net Total	\$76,600	\$17,600	\$91,000	182.0

The budget of the health department, exclusive of the nursing service, is shown to be \$46,200 or 92.4 cents per capita. With nursing included, and reasonable deductions made for payments for care of the sick, the budget amounts to \$91,000, or \$1.82 per capita.

These figures may seem at first thought to be out of all proportion with either the present practice or the financial resources of the smaller cities. But further consideration may well be given the problem as a result of practical experience.

It is true the suggested budget can hardly be compared with any existing health department budget, for none of the 86 cities surveyed, for example, maintains a health department which at present attempts to do all the branches of health work outlined in the plan. In 61 of the cities in 1923, the school nursing work was carried on by the department

of education; in 75 cities, 147 private organizations provided nursing service, supplementing in most cases the nursing service of the department of health. Hospitalization of communicable diseases or tuberculosis appears to entail no expense to the health department in 57 of the 86 cities, though in the remaining 29 cities the cost varies from 1 cent per capita to 85 cents per capita. In other words, in not a few cities the total amount spent on health by the department of health, the department of education, the state department of health, the local nursing association, the societies interested in tuberculosis and venereal diseases, the special clinics or dispensaries, the office of the registrar of vital statistics and the parochial schools, would be equal to or would in certain cases exceed the total required by the present plan.

The evidence for this statement is to be found in one of the 86 cities in which the total expenditure for health amounted to \$2.30 per capita in 1923, although the department of health expended, exclusive of hospitalization, only 50 cents per capita. A municipal child welfare commission expended 42 cents per capita; the nursing association 20 cents; the department of education 11 cents; the state department of health 18 cents; the municipal registrar of vital statistics approximately 4 cents; and an expenditure of 85 cents per capita was noted for tuberculosis and communicable disease hospitalization by the department of health. Another city expended \$1.63 per capita, through the departments of health and education, the registrar of vital statistics, and the visiting nurse association, without including the cost of a state tuberculosis consultation clinic, a Red Cross nutrition worker, venereal disease and prenatal clinics at the hospital, and a tuberculosis league. In fact there is considerable evidence to indicate that on the average the expenditures of the health department are more than equalled by the health expenditures from other municipal and private sources.

If the resources suggested here as desirable were available in an average city, it is believed that the health practice of that city would score close to 1,000 points on the *Appraisal Form* of the Committee on Administrative Practice of the American Public Health Association. It has been stated that the standards suggested are based largely upon experience, or the best practice in the upper 25 per cent of cities already surveyed, in 1923. It may well be emphasized in conclusion that in general it is not usually found that one function of health activity is overdeveloped or very highly developed in a city at the expense of some other major health function, for as a rule a city with a high score is found to be a city with a well rounded health program. Furthermore, cities without such well balanced health programs rarely score unusually high in even one or two types of health work.

SECTION IV

PLAN OF COMMUNITY HEALTH ORGANIZATION FOR A COUNTY OR DISTRICT OF 30,000 POPULATION

INTRODUCTORY STATEMENT

IN the plans for Community Health Organization for cities which are included in this volume, many of the controversial points have previously been considered and subjected to the test of actual practice. The publication of the first plan for cities of 100,000 population, in *Public Health Bulletin No. 136* in 1923, gave opportunity for discussion and application of the principles and policies outlined. Similarly the plan presented for smaller communities in the *Health Survey of 86 Cities* likewise offered a target at which to shoot. In the organization of rural or county services, however, there has heretofore been no comprehensive plan of organization promulgated to focus the thought on details and make for specific criticism and recommendation regarding the principles involved. It is hoped that the plan of county organization presented here will be used as a point of departure in discussions of what is desirable in rural health organization, and that the suggested methods of procedure will not be endowed with an importance not intended.

THE RURAL HEALTH PROBLEM

The public health problem of small communities and rural areas is one of immense importance, for it concerns approximately one-half the people of the United States, widely distributed. Many of these people reside far distant from villages or cities, or even from other habitations. A large proportion of them live in small villages and towns where a limited amount of public health work is done, usually on a part-time basis. Another group live in small communities or rural areas which fortunately have the benefit of full-time health service, administered through a county or district organization under the supervision of the state health department.

According to the 1920 census, there are 3,045 counties in the United States, distributed according to population as follows:

POPULATION	COUNTIES	PER CENT
Under 10,000	728	23.9
10,000 to 20,000	993	32.6
20,000 to 30,000	612	20.1
30,000 to 40,000	267	8.8
40,000 to 50,000	118	3.9
50,000 to 100,000	191	6.3
100,000 to 500,000	119	3.9
500,000 to 1,000,000	11	0.3
1,000,000 and over.....	6	0.2
Total	3,045	100.0

That only about one-tenth of these counties have full-time health service is perhaps surprising until one considers that prior to 1911 there was not a single county health department in the United States. One of the most encouraging developments in public health work during the past ten years has been the important advance in the provision of rural health service.

The proportion of the rural population served according to the county or district plan is increasing yearly, and in January, 1926, 307 counties or districts were organized with local health service under whole-time local (county or district) health officers. Of this number according to Lumsden,* 280, or 91 per cent, received financial assistance for the support of their local health service from one or more of the following agencies: the state board of health, the U. S. Public Health Service, the International Health Board, the Children's Bureau of the U. S. Department of Labor. Unfortunately, over 84 per cent of our rural population is as yet unprovided with official local health service approaching adequacy.

THE COUNTY UNIT

The administrative unit which is being increasingly adopted for rural health work is the county, except in those parts of the country where the governmental unit is the township. The plan of this organization may take different forms. It may be organized primarily on the need of the rural areas and render service to urban communities on a contract basis. Or, the service may be planned primarily on the urban needs with the zones of influence extended to care for the rural population in such matters as are necessary. In certain instances, as where

* Pub. Health Rep. 19, May 7, 1926.

the governmental unit is the township, as in New England, for example, several communities may combine to form a health district.

THE PRESENT PLAN

In formulating a plan of health organization, it is necessary to make certain deliberate assumptions relative to the size of the district to be served, and the details of the problems which exist under somewhat normal or average conditions. From the classification of counties on a population basis, it is observed that a large proportion of them have considerably less than 50,000 population, 76.6 per cent have less than 30,000 population. From a practical administrative standpoint, a district with 20,000 or more of population is usually satisfactory for the development of full-time service; and for this service it may frequently be desirable for smaller communities to combine. For the purpose of the present plan, a county or district of 30,000 population (20,000 urban and 10,000 rural) has been selected, as this seems a practical size for the development of a well balanced program, and such a community is more common than a larger one. The greater part of the data for this plan have been here assembled for the first time, though the discussions of county health organization at the Atlantic City meetings have been utilized, in addition to many other sources.

SUBDIVISION OF RURAL AREAS *

Rural areas have been classified as follows: (1) Townships; (2) Counties; (3) Cities and villages under 2,500; (4) School districts; (5) Special improvement districts. All of these may have taxing power, and either complete or limited administrative power. In a few states, the township is the primary subdivision; but in many instances this subdivision is passing out of existence and the county is assuming its functions. Cities are still largely sovereign, and in a limited sense the same is true of school boards, although here too certain functions are becoming merged with the county activities.

BASIC REQUIREMENTS

The basic requirements for a successful health organization have been well outlined by Mountin:

1. The population unit to be served must be so organized as to possess the following essential features: a taxing unit; an administrative unit; a social, economic and political unit; and it must possess sufficient taxable wealth.

* In the development of this section of the plan, liberal use has been made of a paper presented by Joseph M. Mountin, M.D., American Health Congress, Atlantic City, May, 1926.

2. A county or district with its contained townships, school districts, and cities up to 25,000 and possibly larger, should form the administrative unit. The necessary amalgamation of its subdivisions should be effected by statute or a vote of the people, as a voluntary association of any type leads a precarious existence and should not be formed unless there is no other way of getting a grouping sufficient to support an adequate health organization.

3. If at all possible, there should be represented medical service, nursing service and sanitary service.

4. For stability of financing, a coöperative plan of procedure should be perfected between the state and local governments.

5. The work must be organized under local official auspices and under the general supervision of the state health department.

6. At least the key positions must be filled by whole-time workers possessing the necessary personal and professional qualifications.*

METHOD OF ORGANIZING AND FINANCING

Legislation must be secured authorizing counties or districts to finance and administer health affairs. The local administrative body may be: (1) the existing county authorities; (2) a specially elected or appointed board; or (3) a board composed of representatives of the several local official bodies. For the time being, the urge and possibly some financial assistance must frequently come from extra-county sources. The local official funds should be obtained either through special tax or from the general revenue. The county or district should be the taxing unit, but if this cannot be effected, the expense may be prorated over the several local subdivisions.

COMMUNITY ORGANIZATION

Departmental Organization

Effective health administration requires a board of health, a full-time well qualified health officer, and a trained corps of workers, supported by adequate funds and a favorable public opinion. Whether elective or appointive, the board might consist of 5 unpaid members, representative of the professional and lay interests of the district, 1 or more of whom should be a physician. The election or appointment of these members should be for a period of 4 or 5 years, with provision for overlapping terms of service.

The functions of the board of health, in general, should be to employ a health officer or commissioner of health, to formulate rules and regulations, consistent with those of the state, for the protection and promotion of community health, and to act upon the annual budget, prepared by the health officer. Central administration is obviously essential, and

* Insecurity of tenure was emphasized by S. J. Crumline, M.D., as one of the obstacles to efficient public health administration. American Health Congress, Atlantic City, May, 1926.

it is believed that the health officer should be given authority to assume direct responsibility for the administration of the health department, except in special cases where the board exercises direct administrative authority. It is desirable that the board should meet at least monthly to consider special problems which may arise, as well as to conduct routine business. The health officer should sit with the board during its deliberations, as its executive officer, and it would seem preferable that he be a member of the board.

Sanitary rules should be in accord with modern knowledge, and should observe the state standards as a minimum. A wisely conceived sanitary code is one of the foundations of effective health administration. If two or more communities form a single health district, a single sanitary code should obviously be adopted for the district in order to secure uniformity of procedure and effective administration.

The main administrative office should be located at the county seat and should be adequate to house the main staff of the health department. Branch offices, when necessary, may be used as clinics, conference and nursing centers. In the main offices should be assembled the vital statistics of the county or district, with provision of adequate files, and fire-proof cabinets for preservation of important records. This is also the logical location for the public health laboratory and quarters for the personnel of the department.

Voluntary Organizations

In county and district health work it is primarily essential that excellent coöperation exist between official and voluntary health agencies. The health officer needs the support of a strong advisory committee, composed of either a few individuals selected by the health officer to be of particular assistance to him, or a number of individuals delegated at the request of the health officer by the various health, social, professional (such as medical and dental), and business organizations of the district.

In formulating this plan of organization, it seems essential, as in the two city plans previously outlined, to include all the basic elements of the modern health campaign, although many of these duties are actually performed by voluntary or official organizations. It should be clearly understood that wherever these services are provided in a satisfactory manner by some other agency than the health department, the organization and budget of the latter may be reduced accordingly. However, the health program of agencies other than the health department should be developed in close coördination with that of the official

body which is directly responsible for the supervision of community health activities.

ORGANIZATION BY FUNCTIONS

For convenience in discussing the work of the health department it is desirable to classify the various activities according to functional headings. The details and extent of organization may differ with local conditions, but in general, and for the purpose of the present program, may be outlined as follows, for a district of 30,000 population:

- I. Administration and Records
 - A. Administration
 - B. Public Health Education
 - C. Vital Statistics
- II. Communicable Disease Control
 - A. Control of Epidemic Diseases
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I. Administration and Records

A. Administration

One of the primary factors responsible for the recent advances in county health administration has undoubtedly been the adoption of the full-time plan of service. A county or district of 30,000 population needs a full-time medical health officer, trained in modern public health practice, well versed in professional subjects, and possessing administrative ability and personal qualifications necessary to insure the efficiency and stability of his department.

The general administration of the department should be conducted by the health officer, with the assistance of an able clerk. In addition to purely administrative procedures it is believed that in a county or district of this size, the duties of public health education and registration and collection of vital statistics rightfully belong to the health officer, and if wisely discharged, may be helpful forces in the conduct of his work. The clerk should be a tactful person and capable of handling the purely

routine office business of the department, leaving the health officer free to study his manifold problems, establish and maintain contacts in the community, and supervise all the official health work.

B. Public Health Education

Success in public health work is influenced in no small degree by the type of publicity and education carried on by the department. In rural and semi-rural districts, the task of health education is considerably different in certain respects from that in the urban communities, but the need is no less great. Results are not infrequently slow in attainment, but once the underlying principles are established, response of the public is usually ready and reasonably liberal. Educational measures suggested include the following activities:

1. Distribution of educational health pamphlets and circulars of information to those caring for communicable disease cases.
2. Preparation of health bulletins, weekly or monthly, which among other things, give information to physicians, nurses, and social workers regarding all phases of public health work in the jurisdiction.
3. Systematic organization of newspaper publicity in a way to give interviews to reporters as well as instructive articles for newspapers.
4. Delivery of public lectures on health whenever requested.
5. Conduct of public health exhibits on occasion (as in public schools and at community fairs).
6. Showing of motion pictures on health.
7. Coöperation with school authorities.

The health officer must be prompt and proficient in his work, keep full records, answer correspondence promptly, and make public reports. The preparation and publication of an annual report is of distinct educational value. These records and reports are necessary in order to inform the public of the work of the health officer, and as indicated by Overton * to arouse the interest of the people in public health matters. Such records are also necessary to enable the board of health to act intelligently and to pass upon the budget. Records of field work are necessary for the protection of the health officer himself and of the municipality which he represents. On account of its intimate association with department policies, this work should be under the direct supervision of the health officer. In the execution of these plans, the health officer should enlist the support and coöperation of all available organizations and agencies.

* Overton, Frank, M.D., Sc.D. *Public Health and Hygiene*, Lea and Febiger, Philadelphia and New York, 1920.

C. Vital Statistics

The vital statistics in a large percentage of small communities are in the hands of a special registrar, who is usually the town clerk. Under such a plan, the work is inclined to be of a perfunctory character and devoid of health significance. Modern practice, however, calls for the care of all records of vital statistics by the health department, and it has been shown to be practicable to have an office of records, reports and vital statistics located at the headquarters of a county department of health. This office should be charged with keeping of current mortality and morbidity records for the county or district, their compilation for purposes of administrative control and for measuring progress, and presenting regular tabular and graphic reports showing vital statistics data and results of activities. It might be feasible also to compile monthly scores of child health work, and special clinic data, as well as to plan special studies and surveys.

Efforts should be made to secure as complete vital statistics data as possible in order to carry out the requirements for admission to the U. S. Birth and Death Registration Areas and thereby maintain as reliable information as possible concerning these problems. Certificates should be checked for completeness and accuracy, and death certificates from communicable diseases should be routinely checked against disease reports and reconciled. It is also desirable that deaths under 1 year and stillbirths should be checked against reported births and stillbirths. Births and deaths should be indexed alphabetically by name.

It is desirable, wherever practicable, that tabulations of deaths be made by cause, by age and sex, by color and nativity, and that births be classified by color and nativity of mother. The annual infant mortality rate should be compiled by nativity and color of mother, and annual death rates of each of the 10 locally principal causes of death should be made, as well as monthly tabulations by cause. These data form the basis of many of the plans of the health department in order that the work may proceed along sound lines. This department should also be prepared to receive, classify and study reports of morbidity, thereby establishing close contact with the divisions of communicable disease control and of laboratory. It is desirable that the health officer be directly in charge of this work and that his clerk be sufficiently conversant with the general procedure to act in his absence.

It may be readily seen that a health officer must be a highly skilled person to carry out effectively these different lines of endeavor. It is obvious that the salary of the health officer will vary with the size and wealth of the county and the efficiency of the health officer. He should

ultimately receive a salary of from \$4,000 to \$7,000, with continued and successful service. As people come to realize more fully the importance of this position and as more highly trained men, capable of leadership, become available for full-time positions, salaries will increase proportionally.

II. *Communicable Disease Control*

Effective control of communicable diseases depends on prompt reporting of cases to health authorities, investigation of sources and means of spread, and elimination of avenues of infection. There is needed a sanitary code which establishes periods of quarantine and isolation for the different diseases, and also indicates standard procedures for control of case and prevention of spread of disease. Provision should be made whereby those needing hospital care may receive it, for the protection of the patients and of the community. As in the outlines of city health administration, it seems desirable to consider individually the problems of control: A, of epidemic diseases; B, of tuberculosis; and C, of venereal disease, in view of the special characteristics of these types of diseases.

A. *Control of Epidemic Diseases*

Epidemiological procedures have changed considerably as our knowledge of "persons and not things" as primary infective agents has increased, and definite information rather than mere general impressions is now sought promptly by health officials. In thus securing information of cases as they develop, and preparing to detect the presence of an outbreak at the earliest possible moment, the health officer is taking measures to reduce his endemic incidence as well as to prevent or postpone epidemics. In order to secure that prompt notification of cases by attending physicians (and others if there is no physician in attendance), which is the foundation of all epidemiological studies, it is important to provide facilities for reporting in the way of form cards, such as those recommended by the Sub-committee of the Committee on Administrative Practice of the American Public Health Association.

Provision has already been made for the receiving of case reports and proper recording by the health officer, who should also be the registrar of vital statistics, assisted by the clerk, and it is recommended that the health officer direct and supervise the epidemiological studies. He should be assisted in this work by public health nurses, who, with careful teaching, will readily be capable of conducting many of the field investigations in connection with their other duties, and thereby place the data before the health officer for analysis and correlation. These

facts, together with the vital statistics data, will keep the health officer informed of current disease problems and general health conditions.

1. *Reporting*: One of the essentials of an adequate program is adequate reporting to the county health department, which in turn transmits reports to the state health department. According to suggested standards for county health practice, if there are reported less than 7 cases of typhoid and paratyphoid per death, less than 15 cases of diphtheria per death, less than 50 cases of scarlet fever per death, less than 100 cases of measles per death, and less than 25 cases of whooping cough per death, it may be assumed that reporting of communicable diseases is incomplete. Provision of free laboratory service to physicians is an important factor in facilitating reporting of certain diseases which may be diagnosed by laboratory methods. Records of cases should be maintained and filed, preferably with disease incidence correlated with other epidemiological information, such as milk dealers and schools. Spot maps of cases of typhoid, scarlet fever, and diphtheria, and chronological charts should be utilized so far as practicable.

2. *Medical supervision*: An important feature of health department work is the consultant diagnostic service, which may include verification of the diagnosis of the major communicable diseases. This service naturally calls for highly technical aid to local physicians, and, if effective, may develop a strong bond between local physicians and the health department. In most instances, in a district of this size the health officer will doubtless be in the best position to render this service. In certain other cases, an organization plan might well be developed whereby a school physician would be employed, who incidentally exercises this function in his examinations, and might assume this additional responsibility of rendering diagnostic aid upon the request of physicians. Facilities should be available for study of minor outbreaks, with power to institute prompt measures to prevent epidemics, including vaccination and immunization of contacts, special investigations, isolation, quarantine, and the like. A supply of vaccines and sera should be available for use in the district or county, by general practitioners and by members of the local and county health organizations. Special immunization clinics for preschool and school children, for protection against diphtheria and smallpox, should be established in each local health center by the health officer.

3. *Nursing supervision*: The general nursing program will be later discussed, but it seems appropriate here to mention special aspects of the work. The nurse is in a unique position to give instruction and advice concerning isolation, quarantine and concurrent disinfection, as well as to assist the health officer in his investigation of reported cases.

Reasonable terminal cleansing under the direction of the health officer, assisted by public health nurses, should also be instituted. Suggested standards call for visits by members of the professional staff (physicians and nurses) to cases, on the average, as follows: 3 visits per case of diphtheria and typhoid, 2 visits per case of scarlet fever, and 1 visit per case of each of the following diseases: measles, whooping cough, poliomyelitis, and meningitis. Most of these visits would doubtless be nursing visits, for giving suggestions concerning prevention of infection and the care of cases, as well as for taking release cultures from cases of diphtheria and typhoid. The number of nursing visits required would vary in different communities, and with the prevalence of the diseases.

4. *Special control practices:* In addition to general control measures which have been outlined, it may be appropriate to refer to special disease problems. Considerable progress in diphtheria prevention has been made, with increased knowledge of the feasibility of administrative and medical measures. It is generally accepted that all known contacts of active cases should be cultured and controlled; that an effort should be made to secure immunization of susceptible contacts; and that cases should be released only after at least two successive negative cultures, taken 24 hours apart, or after a time limit quarantine established by the state department of health. The use of the virulence test in connection with cases where the organism persists for an unusually long time (4 to 6 weeks), has proved of considerable value, although this work is usually done by the state laboratory. Antitoxin should be made available to physicians for any case or contacts, either by the local area, or by the state. An attempt should be made to secure immunization of at least 20 per cent of the preschool population annually through the coöperation of general practitioners and the development of immunization clinics.

In connection with typhoid control, accepted practice calls for release of cases from supervision only after negative cultures. Some counties have rendered valuable service in maintaining a register of typhoid carriers, especially among milk and food handlers. Immunization of a large part of the population against typhoid fever has been found effective and practicable in certain rural areas.

All known susceptible contacts of smallpox cases should be successfully vaccinated, or effectively controlled for 21 days, and efforts should be made to secure vaccination of all school children before the opening of schools in the fall. Child contacts (non-immune) of scarlet fever should be controlled for 7 days. As an aid in the prevention of ophthalmia neonatorum, it has been found practicable to distribute free to physicians and midwives an officially accepted prophylactic. Prompt

reporting of cases is obviously essential in order that provisions may be made for immediate and adequate treatment.

5. *Hospitalization*: It has been previously suggested that facilities should be available for hospitalization of cases of communicable disease needing this care. There has been a growing tendency for the establishment of county or district hospitals, although the movement has been slow in development. It may be impractical to secure the erection of a county hospital immediately, although a pavilion for communicable diseases may sometimes be secured or established in connection with a general hospital of a small city in the county or nearby community. Provision should be made whereby cases which cannot be satisfactorily isolated or cared for at home may be taken to the hospital if occasion arises.

B. *Tuberculosis*

A comprehensive tuberculosis program is far reaching in its scope of activities, and must be developed in and around a broadly conceived plan of community health conservation. The county is particularly well adapted as a control unit from the standpoint of administration and hospitalization. In fact a large proportion of the tuberculosis sanatoria are county institutions, which serve as one of the important links in the chain of control services.

1. In order to secure effective control of tuberculosis, it is obviously necessary that cases be discovered and reported early. At least 3 new cases (of all forms) should be reported annually for each death recorded. If it be assumed that the tuberculosis death rate is 80 per 100,000 population, there would be reported according to this standard, in a community of 30,000, about 72 cases. Were the Framingham experience borne out on a large scale in a district of this character, there might be expected 9 cases for each death, or about 216. To discover these cases early, there is necessary a campaign leading to the adequate medical examination of all cases of tuberculosis, suspects, contacts and groups of persons particularly susceptible to the disease. To secure these results, there is needed an effective law for the reporting of cases of tuberculosis and a systematic registration of all such cases. There are needed in addition, laws or rules and regulations designed for the control of the incorrigible tuberculous individual.

2. To aid in the discovery of cases in their early stages, an expert consultation service should be provided for the district, for service in the homes, in schools, in industries, and in special clinics. This service should be of the highest order available for the aid of practicing physicians, although in a community of this size, it might necessarily be on a

part-time basis. As an adjunct to the consultant medical service, there must be available public health nursing facilities for the follow-up of contacts and suspected cases, to bring them under medical supervision. Adequate laboratory facilities for diagnostic purposes should likewise be provided.

3. It is essential that all cases carried on the register be properly cared for, for protection of themselves and of others, including provision of medical and nursing care in the home or in institutions. Much of the responsibility for certain cases will naturally be assumed by private physicians, but in many instances these services must be provided by official or voluntary agencies.

4. The educational influence of physicians and nurses should be exercised in imparting knowledge and advice concerning the means of spread of the disease and methods of prevention, including concurrent disinfection of sputum, eating utensils, and the like, terminal cleansing as needed, and the pasteurization of milk.

5. Provision should be made for treatment of ambulant cases in clinics, which should be so located and operated as to meet the special needs of the district. A standard of 1,000 clinic visits per 100 deaths has been suggested as reasonable for county service under present conditions, with a ratio of 3 visits per patient registered the previous year. Special consultation service should be afforded for cases referred by private physicians.

6. One of the most important features of the work is the adequate follow-up of cases to insure continued medical care and to give instructions to patients and their families in their homes. This service is needed by ambulant cases and also by arrested cases or patients returned from sanatoria. A standard of 2,000 nursing visits per 100 deaths (or 480 visits) has been suggested, 10 per cent of the total tuberculosis field nursing visits to be made in behalf of post-sanatoria cases. Nurses engaged in this work must have a wide knowledge of social problems to assist them in their home visitations.

7. Stimulation should be given to the provision of adequate state and county sanatoria, and to the early use of tuberculosis institutions by patients needing this care. Ideally, there should be beds for both children and adults, to the extent of 1 bed for each death, with provision for hopeful cases to be taken by a sanatorium, and for the hopeless or terminal cases to be taken by a general hospital. If possible, there should be a medical superintendent in charge of all clinical work in the sanatorium, hospital, and dispensary, thereby establishing a very close contact with the new case before admittance to an institution, and also adequate follow-up on discharge from the sanatorium. In case

there is no provision for hospitalization of cases in a county or district, either by official or private agencies, or if the total number of admissions falls below 25 per cent of the deaths, the standard of nursing service suggested in paragraph 6 should be doubled in order to provide effective home care of cases and thus insure continuous medical supervision.

8. Encouragement should be given by the health department to a program of occupational therapy for patients in institutions and at home, and for supervising and finding suitable employment and living conditions for arrested cases.

9. Attention should be given, in conjunction with the child hygiene division, to the provision of open air schools, summer camps, and other preventoria for the care of contacts and pre-tuberculous children. It is estimated that 5 children per 1,000 grade school population might be expected to attend these preventoria at least 6 weeks during the year.

It is obviously fundamental that these different activities above outlined be stimulated and coördinated so far as possible under the direction of a medical officer, well trained in this special work. He should be either the superintendent of the sanatorium, as suggested in paragraph 7, or an expert in tuberculosis, provided by the state department of health and competent to serve the clinics and to act as consultant for local physicians.

C. Venereal Diseases

The problem of venereal disease control in a county or district must be approached, as in the case of a municipality, from four angles: educational, legal, medical, and recreational. While the health department is called upon primarily to participate in the provision of the first and third mentioned elements, it must also support all the activities which make up a complete program.

1. A law requiring notification of all venereal disease cases to the local health department is fundamental. Suggested standards call for the reporting of 400 cases (of all kinds) per 100,000 population. In small communities, the responsibility for care of venereal disease patients is assumed fully as much (and doubtless more) by private practitioners as is the case in the large cities. If a physician is to assume full responsibility for the treatment of a given case, reporting may be made by number rather than by name and address, but periodic reports of the continuance of treatment by such cases are desirable.

2. In view of the fact that a large proportion of the cases are of the ambulant type, provision should be made for clinic service, both day and evening, for diagnosis as well as treatment. In southern dis-

tricts, separate periods should be arranged for white and colored persons. In the rural areas where clinics are not feasible, special arrangement has sometimes been made whereby needy cases may receive regular treatments from private physicians. It is essential that a definite plan be developed to secure continuous and effective treatment of venereal infection and means for diagnosis, treatment, and, so far as possible, prevention of congenital syphilis. In a county of 30,000 population, there might be expected about 240 registrants during the year, with 10 visits per new patient registered. Local physicians, who have had special training in venereal disease work, might well be utilized for this service on a pay basis. A system of follow-up is needed to show the ultimate disposal of cases. State and county organizations should supply physicians with literature on venereal disease for distribution to their patients.

3. There should be legislative provision for examination of presumably infected persons, and for treatment of those who might otherwise prove a menace to others.

4. Field nursing service is essential for instruction of patients and members of their families in their homes, particularly for women and children, as well as to provide the necessary follow-up of patients from clinics. The follow-up of lapsed cases becomes a police function which may require the official action of the health officer, sanitary inspector, or police official.

5. Hospital facilities for a limited number of bed cases (3 or 4) might well be provided in a general hospital.

6. An organized educational program should be developed which would include addresses to clubs and other groups for the purpose of character building and proper presentation of social problems; instruction of the general public regarding health and social hygiene; and the use of exhibits, circulars, and pamphlets.

III. Child Hygiene

Activities in infant and child hygiene have achieved remarkable results in communities where well-conceived programs have been undertaken. Much of the credit for these advances is due to the pioneer efforts of voluntary agencies which have contributed generously to demonstrations of the relative values derived from this work. Official agencies are gradually taking over and developing child hygiene programs, but particularly in small communities is the influence of voluntary organizations still felt. The factor of chief significance is that proper care shall be given expectant mothers, infants, preschool and

school children, many of whom are not in a position, financially, or lack appreciation of the necessity to consult private physicians. Although the plan suggests the employment of specialists for prenatal, infant, and child hygiene work on a part-time basis, it may often be considered more feasible to employ one full-time physician with special training in child hygiene work.

A. Maternity and Infant Hygiene

1. The logical place to give first consideration to infant care is during the prenatal period, when the expectant mother should be surrounded with the best medical and nursing care available, and with a wholesome environment. There should be a system of prenatal medical conferences established in convenient locations in order that expectant mothers who do not have private physicians may attend regularly for medical examinations and advice as to diet and habits of living. Efforts should be made to insure that a large proportion of expectant mothers be under the medical supervision of a private physician or of a prenatal medical conference. One semimonthly prenatal medical conference will doubtless be needed in the largest city of the county or district, with at least monthly conferences in two or more of the other communities of the district. These would care for 250 visits per 1,000 total births in the area. The number of nurses' visits in behalf of prenatal cases may be expected to total around 750 per 1,000 births, in addition to the follow-up visits to postnatal cases. Assistance at time of delivery may be needed in many cases where a private nurse is not employed.

2. Many of the maternity cases will be under the care of private physicians and a large proportion of the deliveries will occur in the home. Hence, expectant mothers may be instructed through special classes in home hygiene and in maternity problems, and may be assisted in the preparation of supplies to be used at time of delivery. Midwives should be supervised locally or by the state. Loan baskets and sterile packets are sometimes furnished by the state department of health. There is a growing tendency even in small communities toward the use of hospitals at time of delivery, and adequate provision for proper obstetrical care should be made. It may be expected that in the urban districts from 15 per cent to 25 per cent of the births will occur in hospitals.

3. Provision should be made for free distribution and routine administration of silver nitrate for the protection of the eyes of the new-born infant.

4. Efforts should be made through regulations and education to secure prompt registration of all births.

5. In addition to prenatal conference service, or possibly in conjunction with it, should be developed infant and child health conferences to be held at regular intervals in different parts of the county, frequently in coöperation with a state department of health, and local voluntary agencies. If it is assumed that an average county has a birth rate of 24 per 1,000 population, there would be 720 births during the year in this district of 30,000 people. It may be anticipated that many of these children (possibly 25 per cent) could be brought under the care of a well organized health conference, visiting at last 6 times yearly. It is obviously essential that these conferences be conveniently located and that sessions be held regularly. Suggested standards of service call for 2,500 visits to conferences or to physicians by infants under 1 year of age per 1,000 live births. One weekly and one semimonthly conference should be adequate to care for the official part of this program. In this work it would doubtless be possible to enlist the coöperation of volunteer help or assistance in weighing and in caring for those infants in the conference at the time.

6. An adequate, well trained nursing service with headquarters in the district health station is one of the most important factors in a successful program. There will be needed at least 1,500 visits to infants under 1 year of age per 1,000 births. It is fundamental that mothers should understand the instructions given them in conferences, and be able to carry them out under home conditions. In rural and semi-rural areas the development of nursing conferences to which mothers bring their babies is worthy of consideration. Such group conferences save much of the nurse's time otherwise used in travel, and at the same time give the mothers the benefit of nursing advice.

B. Preschool Hygiene

1. An effort should be made to reach children between the ages of 1 and 5 years, many of whom may be brought under supervision in the medical health conference with 1 to 4 visits, supplemented by nursing visits in the home. In the county districts at present there will be expected around 200 visits to conference per 1,000 preschool population, or about 630 in a county of this size. This service might well be operated in connection with the infant medical health conferences. In rural communities, it has been found practicable to utilize school buildings for this purpose.

2. Home follow-up work by nurses is essential for preschool children as well as for infants, although in county work, the practice of group conferences is followed more extensively perhaps than in large cities, and at least 100 visits to homes of preschool children per 1,000 preschool

population may be expected. The preschool population may be estimated as 10.5 per cent of the total population. Baby boarding homes require systematic supervision, and this work may also be carried on by public health nurses.

In addition to these organized efforts for medical and nursing care should be an effort for education in matters of personal hygiene, with emphasis on child hygiene problems. In this work it will doubtless be possible to enlist the coöperation of the state department as well as of volunteers in the community. Means should also be provided through the health department or other channels for dental service for expectant mothers and preschool children who particularly need this care. The medical service supplied the prenatal, infant and preschool conferences should be the best available, and on a paid basis. If possible, there should be provided specialists experienced in the diseases of infancy and in obstetrics for consultations and general direction of the services under the main supervision of the health officer.

C. School Hygiene

School health supervision is recognized as an important part of the school and public health program. Conservation of the health of children in the public schools is fundamental from the standpoint of economy; and to insure that the children who are to be the future citizens of the country are enabled to derive the most good from the educational activities required of them. When a community makes education compulsory, it must assume the responsibility for providing a healthful environment for the children. It must also discover and correct physical and mental defects in the child before they affect his ability to learn and interfere with his school career. It must furthermore educate the child in the principles of health living so that he may himself have sound health and safeguard the community in the future.

A county or district of 30,000 population will have approximately 4,800 grade school children. Experience in county health work has shown that public health education may be advanced more rapidly and effectively through this channel than possibly by any other route. In fact, the school frequently serves as a strategic point of approach for public health nurses as well as for other health workers. A program of school health supervision for a county or district may be outlined as follows:

1. Routine inspection of school children by teachers and nurses for the detection of acute illness and obvious defects.

2. Special medical examinations of children referred by teachers or nurses as suffering from acute illness or requiring medical care.

3. Regular medical examination of all school children, including heart and lungs, at least twice (preferably three times) during their school careers, with a preservation of continuous record, uniformly compiled, for each child. Parents should be encouraged to be present at the time of these examinations.

4. Special classes are needed for children with defects of, eyes, hearing, and for those mentally backward. Correction of defects in crippled children may be a problem in certain counties, while posture and nutrition classes may also be needed in many instances.

5. Nursing service will be needed for care and instruction in the schools, and for follow-up service of children in the homes, to secure correction of defects and to impart health instruction to parents.

6. Special consideration must also be given to the provision of a sanitary environment for school children. All schools should be provided with safe water and with individual drinking cups or bubbling fountains.

In view of the extent of this problem and of the need for continuous medical service, it is often desirable that the health officer be assisted by one or more school physicians, on a part-time basis with the health department, if school work is conducted by this agency. In times of emergency, a portion of the time of the school physician might well be spent in epidemiological work.

IV. Public Health Nursing

The importance of the nurses' work in the whole public health campaign is generally recognized. In a county or district health department, the public health nurse occupies a position fully as important as in a city program, and her responsibilities are often greater, particularly in the rural areas where medical advice is more difficult to obtain. A high type of public health nurse is obviously demanded. At least one county health officer has stated * that the supervising nurse is the main spoke in the wheel of public health activities, and he has outlined her qualification in the following terms:

She is broad minded, energetic and tactful, with a thorough knowledge of the details in public health as related to the nursing side. She has a pleasing personality in her contact with the public, and under all occasions and circumstances she is poised. She respects the health officer and depends upon him for advice. . . .

* Duvall, George W., M.D. A Well-Rounded County Health Department, *Pub. Health* July, 1923.

She is prompt in carrying out the plans agreed upon with respect to engagements at clinics, school inspections and immunization campaigns where the director is required, looking after every detail. . . . She should have a sufficient number of assistant nurses to help her complete the day's work without fatigue and undue demands upon her strength and health.

Under a county or district plan of health organization, fully as much as in a large municipality, it is believed that definite economy and efficiency of service will result from a generalized program. This means that the nurses will be districted and will execute the various types of nursing in their districts* under the direction of a supervising nurse who is herself responsible to the health officer. In case certain nurses are supported by voluntary agencies, or by official bodies other than the health department, it is often found desirable to unite all the nursing forces of the area in a joint public health nursing service to make possible a generalized program operating under the administrative direction of the health department.

In a county or district of 30,000 population, the distribution of time of the staff nurses in a generalized service might be somewhat as follows, if the experience in Cattaraugus County, New York, may be taken as an example :

	PER CENT OF TIME
In patients' homes	28
In district health conferences	30
In schools and clinics	11
In staff meetings and coöperative visits.....	10
In travel.....	21
Total.....	100

The distribution of nursing visits according to the type of visit, such as communicable disease, child hygiene, etc., will, of course, vary with the problems of the locality, the conditions of the period, and other factors. The amount of time consumed in different types of visits will likewise vary. In the Cattaraugus County Health Demonstration, it was found that in 1924 the average duration of visit in homes was 24 minutes, with an average travel per home visit of 5.1 miles. As might be anticipated, the cost of nursing service also varies with the different types of home visits, the time required for a visit to a postpartum case being considerably longer than that for any other type of service. In the order of comparative cost, the types of home visits are indicated as

* Communicable disease, tuberculosis, social hygiene, maternity, infant, pre-school, school, and a limited amount of bedside nursing, including attendance at district health conferences.

follows, from the highest to the lowest cost: prenatal and maternal hygiene, child hygiene, tuberculosis, other communicable diseases, general (miscellaneous), and school hygiene. It is important to bear in mind that the hours of nursing service should be budgeted according to the outstanding community needs, and an earnest effort should be made to live within the limits of a somewhat elastic budget of time.*

It is found that the time spent in health conference service will approximate that of the small cities, but that the time consumed in travel in making home visits in county or district work will, in general, be materially increased over that of cities. On the other hand, the demands for bedside nursing care should be somewhat less, on the whole, than in cities, because of the character of the population and the nature of the problem in rural and semi-rural communities. Experience has repeatedly demonstrated, furthermore, that the bedside nursing care given by a public health organization should be kept down to that required for objective health teaching if progressive health administration is to result. It seems reasonable to expect that in certain communities, as much as 20 per cent of the cost of bedside nursing care might be met by a system of fees for this service.

According to the above program, there would be needed 5 staff nurses, with a well trained supervisor. As will later be shown, however, in connection with the budget, the work may be started with less than this number of nurses. There are communities, on the other hand, where a comprehensive program has been under way for some time where as many as 10 nurses will be needed. To assist in the keeping and classifying of records in a uniform manner, and in the routine activities of the main office, there should also be provided a clerical service.

The nurses working in sparsely settled areas, as is likely to be the case under a county health department, must be particularly well trained in public health nursing, because they are frequently obliged to serve with less supervision than is afforded city nurses. Furthermore, it is essential that a county public health nurse be familiar with rural problems in order to serve most effectively in her district and to understand the people with whom she associates. As in the case of the city program, for the administration of a service of this size and character, there is needed a well trained public health nurse of administrative ability, whose salary should be commensurate with her qualifications.

* A comparative study of generalized and specialized nursing and health service, East Harlem Nursing and Health Demonstration, New York City, 1926.

V. Inspection

In a well-rounded program of county or district health work, due consideration should be given to the problems of securing safe milk and water supplies, proper waste disposal, and sanitary surroundings. In a county or district of 30,000 population, it is believed desirable that inspection work should be directed by the health officer, assisted by a trained sanitary inspector; and there may be counties where a sanitary engineer is preferable.

The functions and duties of an inspection division in a county health department may be outlined as follows:

1. Measures for insuring a safe milk supply, to include:
 - a. The promulgation and enforcement of a modern milk ordinance
 - b. The licensing of milk dealers
 - c. The systematic inspection of dairies and of milk plants
 - d. The proper pasteurization of the urban milk supplies
 - e. The tuberculin testing of dairy herds
 - f. The proper handling and refrigeration of milk
 - g. The regular analysis of milk samples in the laboratory—bacteriologically and chemically

2. Regular inspections, where necessary, and laboratory analyses to insure the maintenance of pure water supplies.

3. Inspections and other necessary measures leading to the installation of sanitary sewage disposal throughout the county or district, including advisory service for proper waste disposal from unsewered homes and public buildings. Such work should be carried on first in the more thickly settled communities.

4. Regular inspections of food-handling establishments, with special consideration given to proper sterilization of eating and drinking utensils.

5. Routine inspections on the initiative of the department, as well as in answer to complaints, for the abatement of nuisances, the sanitary disposal of garbage and refuse, the prevention of fly and mosquito breeding, and the maintenance of sanitary tourist and vacation camps.

6. Regular inspection of all public and private school buildings, advising authorities as to sanitary improvements needed.

7. General educational methods for the improvement of sanitary conditions in rural districts.

VI. Laboratory

Efficient laboratory service will stimulate friendly relations between physicians and the health department, as well as afford early reports

on examinations and a means for investigation of individual community problems. Unless a branch of the state laboratory is located in the district, there will be needed a certain amount of free diagnostic service as well as facilities for examination of milk and water. A county laboratory for an area of this size is justified only when state laboratory service is not readily available. The chief services to be rendered in a county may be briefly enumerated as follows:

1. Examination of cultures for diagnosis or release of diphtheria and typhoid, and of specimens for diagnosis of tuberculosis, syphilis, and malaria.
2. Analyses—bacteriologically and chemically—of samples of milk, cream, and ice cream.
3. Analyses, bacteriologically, of samples of water.
4. Maintenance of an adequate and fresh supply of vaccines and sera to be supplied to physicians for immunization and treatment purposes.
5. Maintenance of uniform records of specimens received and of examinations performed, with prompt reporting of results of appropriate authorities.
6. Study of special research problems of local interest as time permits.

PERSONNEL AND BUDGET

The program which has been outlined embodies a wide range of activities classified under 6 main functional divisions. The scope of this plan may seem more comprehensive than is generally found in operation in counties or districts at present. While it is not assumed that this program is one to be adopted in its entirety necessarily in any given district, it is believed that the general principles and standards suggested may be supplied in adapted form to existing schemes of health practice. The principles advanced have in general been found practicable in certain counties or districts where comprehensive health programs have been attempted and the standards suggested are, for the most part, those proposed by group judgment in the experimental *Appraisal Form of Rural Health Work* as prepared at the direction of the Committee on Administrative Practice of the American Public Health Association.

In order to formulate a well rounded public health program, the plan which has been outlined in the preceding pages has been developed on the assumption that all primary and essential health activities are performed by the department of health. The program outlined is comprehensive and, in most cases, can only be attained by gradual development. It is not anticipated that all its features may be immediately

adopted in detail, but rather that they may prove suggestive for adaptation with a knowledge of local conditions. The primary features of what is at present considered a well balanced plan of county administration have been represented. Each year's experience, however, adds to our knowledge of public health practice in rural and semi-rural districts, and we are consequently not yet in a position to chart a more definite course of procedure to recommend for general consideration in different parts of the country. While it is generally believed that the personnel and budget needs for a comprehensive health program as above outlined are in the main fairly comparable with those of cities as suggested in Sections II and III, it is nevertheless recognized that the development of an organization must proceed gradually. The nucleus for a county organization consists of the following personnel:

	MINIMUM SALARY	MAXIMUM SALARY
Full-time medical health officer.....	\$3,500	\$7,000
Public health nurse	1,500	1,800
Sanitary inspector	1,200	1,800
Clerk-stenographer	900	1,500
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Total Personnel	\$7,100	\$12,100
Transportation	2,160	2,700
Supplies and Contingencies.....	740	1,200
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	\$10,000	\$16,000

It is assumed that when the maximum range in the salary of the health officer has been attained, he will have developed the elements of subordinate personnel to a degree far in excess of that outlined in the maximum column above. In order to visualize the ultimate expansion of the health organization to a point which will enable the health officer to carry out a program as comprehensive as that which has been suggested, the personnel and budget on page 122 is suggested on the basis of present knowledge and experience.

The budget proposed here appears large on first consideration, but it should be remembered that there are included here many types of service, such as prenatal and infant welfare and public health nursing services, which are at present frequently performed by agencies other than the health department. In districts where the establishment of adequate public health service has been undertaken on a demonstration basis, the budget has often ranged from \$2 to \$3 per capita, when the cost of all types of health service is included.

SERVICE	PERSONNEL	APPROXIMATE COST (Including transportation and supplies)	CENTS PER CAPITA
I. Administration, education and records (including vital statistics), and	Health officer, clerk-stenographer, medical assistance (part-time)	\$12,500	41.7
II. Communicable disease control (including tuberculosis and venereal diseases)			
III. Child hygiene (including prenatal, infant, preschool and school)	Medical assistance in health conferences, etc.	6,650	22.2
IV. Public health nursing (including bedside nursing)	Supervisor and 5 staff nurses*	11,500	38.3
V. Inspection (including milk, food, sanitation)	Food and milk inspector, sanitary inspector	5,200	17.3
VI. Laboratory	Bacteriologist-Chemist	3,200	10.7
Total (without hospitalization)		39,050	130.2
Hospitalization of communicable diseases		3,000	10.0
Grand total		42,050	140.2

* If 9 staff nurses, \$7,200 should be added, making a grand total of 164.2 cents per capita.

As emphasized in a report by Mountin, previously cited, county health organizations should be promoted and conducted as local institutions to serve the community and be primarily accountable to local governing agencies. All health work within the county, official and non-official, should be either under the direct jurisdiction, or at least the general supervision, of the health officer. Participation by extra-county volunteer and official agencies should be through and with the state health department.

